



Actively Caring for Safety

Practical Methods, Empirical Results & Provocative Implications

By E. Scott Geller, Joseph E. Bolduc, Matthew J. Foy and Joseph C. Dean

An injury-free workplace requires attention to three domains: the environment (including tools, equipment and climate of the work setting), the person (including knowledge, attitudes, beliefs and personality) and behavior (including safe and at-risk work practices, as well as interpersonal conversation). The factors in these three domains are interactive, dynamic and reciprocal, and determine an organization's culture. In other words, what people do (i.e., their behavior) in a certain context (i.e., the environment) and how they feel about their participation (i.e., their personal state) reflect the situation's interpersonal culture.

Influencing a factor in one domain eventually affects one or more factors in the other domains. For example, changes in some aspect of the environment indirectly affect people's behaviors and attitudes, and behavior change usually results in related attitude change and

such continual attention to the safety-related aspects of workplace environments, behaviors, perceptions and attitudes requires people to go beyond the call of duty for occupational safety and health. This is called *actively caring*, a term originally coined by Geller (1991) and used in companies worldwide to advance injury control beyond results attained through traditional top-down and rule-governed safety programs. This actively caring paradigm has expanded from industrial applications for SH&E to preventing bullying in elementary schools (McCarty & Geller, *in press*; Geller, McCarty, Carroll, et al., 2011) and to promoting prosocial behavior (see www.ac4p.org).

Research in social psychology (Cialdini, 2001; Schroeder, Penner, Dovidio, et al., 1995), applied behavior analysis (Geller, 1998; Geller & Williams, 2001; McSween, 1995; Williams, 2010), and person-based psychology (Geller, 2001a; b) provide principles and practical strategies for increasing a sense of interdependency and actively caring behaviors throughout a work culture. This article shares the practical methods, evaluation procedures and empirical results of one company's attempt to achieve an actively caring safety culture—a brother's/sister's keeper workplace in which people are self-motivated to look out for each other's safety on a regular basis.

IN BRIEF

- Practical steps toward improving the human dynamics of occupational safety are delineated.
- A brief perception survey to estimate employees' perceptions of self-motivation and inclusion for safety is detailed.
- Mean survey scores and results from focus groups correlated significantly with injury rates across seven and five manufacturing sites, respectively.

some change in the environment. Thus, to achieve and maintain an injury-free workplace, employers need to address each domain daily throughout the development, implementation and evaluation of intervention strategies designed to remove environmental hazards, decrease at-risk behaviors, increase safe behaviors, and provide more user-friendly or ergonomically sound workstations.

E. Scott Geller, Ph.D., is a senior partner of Safety Performance Solutions, alumni distinguished professor at Virginia Tech and director of the Center for Applied Behavior Systems (CABS) in the Department of Psychology at Virginia Tech. He is a professional member of ASSE's Star Valley Chapter.

Joseph E. Bolduc, M.B.A., is division environmental, health and safety manager for Shaw Industries Group Inc., Fibers Division. Bolduc has 30 years' experience in public and industrial safety. He is a professional member of ASSE's Chattanooga Area Chapter and a member of the Society's Manufacturing Practice Specialty.

Matthew J. Foy works in the Risk Management Division of Shaw Industries Group Inc., which he joined after graduating from Virginia Tech. While at Virginia Tech, Foy served as center coordinator for CABS.

Joseph C. Dean is environmental, health and safety manager at the Aiken, SC, location of Shaw Industries Group Inc. He holds a B.S. in Psychology from Virginia Tech, where he also worked for CABS. Dean is a member of ASSE's Augusta Chapter.

locations in Georgia, South Carolina and Alabama. The plants manufacture and process nylon, polyester and polypropylene yarn for Shaw's flooring plants. The division is a result of an acquisition of eight manufacturing facilities from several yarn manufacturers, each with differing cultures. The plants have been assimilated into common compliance, quality, environmental and safety management systems, while maintaining their individual cultural characteristics. Each site has a mature behavior-based safety (BBS) program in place, including the relevant site-specific safety committees.

The Vision

This initiative arose in response to a keynote speech delivered at a division-sponsored BBS conference for the seven plants. Speaker Bob Veazie, M.B.A., is coauthor of *The Courage Factor* (Geller & Veazie, 2009) and *When No One's Watching* (Geller & Veazie, 2010). These books present realistic narratives that illustrate principles and procedures of people-based safety (Geller, 2005; 2007), and depict real-world experiences from the pursuit of a self-motivated and actively caring workforce, presumed necessary to achieve and maintain an injury-free workplace.

Division and plant leadership, as well as the site BBS steering committees, embraced the concept and voiced a desire to learn more. To appreciate the underlying research and specific methods of application, division and plant managers read a real-world narrative that illustrated practical strategies for motivating employee involvement in a company's mission (Geller & Veazie, 2010), then held a workshop to develop and discuss the safety vision and mission statement (Figure 1).

Participants agreed to begin the work of progressing their safety culture to a state where employees would have greater propensity to actively care about each other's safety 24/7. Several sites displayed this mission statement on a large banner at their entrance, along with felt pens and a request for signatures from associates committed to this vision.

Next, four safety-focused teams were established at both the division and site levels to com-

mit resources, benchmarking and mutual learning toward the safety vision. These four teams are: 1) communications; 2) training; 3) recognition; and 4) survey. Each team's general mission statement is summarized in the sidebar on p. 46.

The Initial Perception Survey

Geller and Veazie (2010) propose a simple evidence-based, seven-item checklist for evaluating whether employees are self-motivated on the job. Specifically, people are presumed to be self-motivated at work when they: 1) are heard (i.e., feel management listens and appreciates their input); 2) contribute (i.e., support the business by competently performing worthwhile work); 3) belong (i.e., trust and appreciate coworkers, and vice versa); 4) learn/grow (i.e., believe they produce worthwhile work while contributing to the business); 5) have choice (i.e., enjoy some sense of autonomy and personal control on the job); 6) are recognized (i.e., believe their contributions are known and appreciated); and 7) feel empowered (i.e., believe they can accomplish daily assignments and, consequently, contribute in a measurable way to the system, the larger community as a whole).

Considering these seven qualities, division and site leadership devised an eight-item survey (Table 1, p. 46). It was hypothesized that employees (termed associates) scoring higher on this estimate of one's perception of inclusion and self-motivation would more likely participate in safety-related efforts that require self-direction and self-motivation 24/7. Thus, work cultures scoring higher on this survey should experience fewer injuries as reflected by a relatively lower OSHA total recordable injury rate (TRIR).

For each survey item, the two extreme anchor points for a 10-point scale are depicted; these were used during summer 2009 to administer the survey at several meetings at each of the seven manufacturing sites. The approximately 25 participants at each meeting were asked to anonymously rate their personal perceptions for each of the eight items. Specifically, each survey item was read aloud and participants were asked to write down

Figure 1

Safety Vision & Mission Statement of Shaw Industries Group Inc., Fibers Division

"We will work to create a safety environment at Fibers Division Plants in which all employees are actively caring for and committed to each other's safety. We will drive a high level of compassion and encourage employees to raise safety concerns without fear of retribution. Our behaviors and beliefs will demonstrate that we believe safety is a choice and doesn't happen by chance."

Team Mission Statements

The basic mission for each new work team at the seven plant sites of Shaw Industries Group Inc., Fibers Division.

- **Communication.** Drive business issues, site news and decision making down in the organization so all have the opportunity to be heard and contribute.
- **Training.** Create new and hone existing communication skills.
- **Recognition.** Develop strategies and programs that allow individuals to understand their meaningful work is appreciated by management.
- **Survey.** Continuously conduct, review, reengineer and communicate surveys and their results so the organization understands what topics it has chosen as important and how well the organization is perceived as improving these topic areas as they relate to cultivating an actively-caring safety culture that can achieve and sustain an injury-free workplace.

(on index cards) a number ranging from 1 to 10 to indicate how well they believe the company meets each particular need for them. The anchor extremes were read per each item to represent a rating scale ranging from 1 to 10.

The index cards were collected, and an average survey score across all items was calculated for each site. Site averages were compared with each site's 2009 TRIR. The three plants with the lowest TRIR had the highest composite survey scores, while lower survey scores were obtained from sites with higher injury rates.

Based on these results, management conducted a more systematic and comprehensive analysis of the perceptions assessed with the survey items. To connect the survey more directly with occupational safety, Item 7 was changed to "I have control over how safely I choose to work"; Item 8 was modified to read, "I actively care about the safety of others"; and a ninth item, reflecting a key component of BBS, was added: "I accept negative feedback and take action to improve based on that feedback."

The Actively Caring Culture Survey

The nine-item perception survey was administered via the Internet to a randomly selected 10% of associates each month at each division manufacturing site. Respondents were selected either because their birthday was in that month or by a random number generator. This ensured that a cross section of the entire site population was sampled each month.

Participants rated each item on a 10-point Likert scale with "1" indicating "strongly disagree" and "10" representing "strongly agree." A rating of "5" was specified as "neutral." Survey responses were entered anonymously.

After 4 months of collecting Internet survey data, including approximately 40% (10%/month x 4 months) of the associates per site, the division's EHS manager conducted a

statistical comparison of each site's survey results with its 2010 TRIR. Specifically, the mean site score per survey item was calculated to reveal eight means per each of the seven sites. Then, treating plant site as a subject variable, these item means were correlated with TRIR using the Pearson product-moment correlation coefficient.

Results

Figure 2 depicts the nine survey questions and each site's TRIR, as well as each site's sample size and plant's mean score per item on the nine-item survey. The seven plants are ordered according to their TRIR in 2010, from highest to lowest.

In general, sites with higher TRIRs had lower average scores per survey item, although the range of the mean scores per item is relatively narrow, considering that scores could vary from 1 to 10. However, it is noteworthy that the means ranged from a low of 5.49 (site with the second highest TRIR) to a high of 9.20 (site with the lowest TRIR).

Most revealing are the item correlations with TRIR per site (bottom of Figure 2). Every correlation is negative, indicating lower perception scores for sites with relatively higher incident rates. The highest negative correlation (-0.88) was found for Item 7, "I have control over how safely I choose to work."

Figure 3 presents a scatter plot of the TRIR versus mean total score across all nine survey items. The best-fit straight line shows a rather consistent negative relation between injury rate and total score on the nine-item survey. One of the two sites with zero injuries had the highest total survey score, while the four sites with relatively high TRIRs had the lowest total mean scores on the perception survey.

Implications

While these data show strong connections between an organization's injury rate and its culture,

Table 1 Inclusion & Self-Motivation

The eight-item survey used to obtain an estimate of associates' perceptions of inclusion and self-motivation on the job.

	Question	Description for a "1"	Description for a "10"
1	I am heard.	I never get feedback on my ideas.	I always get feedback on my ideas.
2	My ideas contribute to the business.	I can't make a difference.	What I think makes a big difference.
3	I belong here.	I cannot stand coming to work.	I love coming to work.
4	I receive recognition.	I never receive any recognition.	Recognition is excellent.
5	I am competent at my job.	I do not know what I am doing on the job.	I am very capable at my job.
6	I am learning.	I am not learning anything.	I learn something new everyday.
7	I have control in how my job is done.	I have no control in how my job is done.	I have control in how my job is done and I follow policies and procedures.
8	I serve others.	I never get involved when I see someone in danger.	I always get involved and help the person I see in danger.

Note. Adapted from When No One's Watching: Living and Leading Self-Motivation, by E.S. Geller and B. Veazie, 2010, Newport, VA: Make-A-Difference LLC.

a cause-and-effect conclusion is inappropriate. Furthermore, these correlations do not support the reliability or validity of the perception survey as a suitable measure of corporate culture. The division's survey committee was convinced that the survey activated provocative conversation, but decided that certain questions could be improved. Specifically, Item 3, "I belong here" seemed too general for an ethnically diverse workforce. Some associates suggested *here* could mean "this country, this state or this city." Furthermore, the added item, "I accept negative feedback and take action to improve based on feedback" really asked two questions, "Do I accept feedback" and "Do I use feedback to improve."

The survey has since been revised and is used for monthly assessments with 10% of associates at each site. Item 3 now reads, "I have a sense of belonging among my work team," and Item 9 was expanded to three items, "I receive corrective feedback from my peers"; "I willingly accept corrective feedback from my peers"; and "When I receive negative or corrective feedback, I react to improve my behavior." Follow-up analyses of the revised survey will presumably provide additional revelations about employee perceptions, workplace culture and injury prevention.

This continuous improvement mind-set prompted the division's EHS manager to contact the Center for Applied Behavior Systems (CABS) at Virginia Tech to develop another approach to assessing and improving workplace culture with regard to occupational safety. It was decided to conduct focus

Figure 2 Survey Questions & TRIR

Mean site survey score per item and correlations between these scores and each plant's TRIR in 2010.

Questions

- 1) I am heard.
- 2) My ideas contribute to the business.
- 3) I belong here.
- 4) I receive recognition.
- 5) I am competent at my job.
- 6) I am learning.
- 7) I have control over how safely I choose to work.
- 8) I actively care about the safety of others.
- 9) I accept negative feedback and take action to improve based on that feedback.

Plant	N	TRIR	Survey item as listed above								
			1	2	3	4	5	6	7	8	9
6	136	2.76	6.25	6.46	7.31	6.25	7.87	7.24	8.09	8.37	7.31
7	560	2.03	5.64	5.49	6.69	5.40	8.04	7.72	8.23	8.27	7.35
4	180	1.95	6.27	5.89	7.03	6.32	8.00	8.00	8.48	8.70	7.77
3	260	1.82	5.88	5.85	7.20	5.99	7.76	7.77	8.47	8.55	7.07
1	140	1.15	6.61	6.43	7.34	6.48	8.19	7.76	8.52	8.45	7.63
2	260	0.00	6.58	6.44	7.00	6.66	8.06	7.77	8.68	8.5	7.72
5	100	0.00	7.81	7.11	7.82	7.38	8.58	8.21	9.20	9.00	7.96
Correlations			-0.73	-0.61	-0.39	-0.73	-0.71	-0.66	-0.88	-0.57	-0.69

groups at the five plants most geographically proximal. Two graduates of Virginia Tech (this article's third and fourth authors) were hired as summer interns to lead focus groups tasked with exploring ways to apply lessons learned from the results of the actively caring culture survey. Each intern had majored in psychology, conducted substantial psychological science research at CABS, and completed an advanced senior seminar on the psychology of self-motivation.

The Focus Groups

For 13 consecutive weeks, the two interns followed one of two procedures (due to differing capabilities per site) when conducting daily focus groups with plant associates, at five different sites (plants 2, 3, 4, 5 and 7 in Figure 2).

Most focus groups included 8 to 12 associates, each sampled from different departments, and lasted about 45 minutes. When this method was used, five to seven focus groups were conducted per day. In some facilities, however, it was more practical to facilitate focus groups of three to seven associates for 20-minute sessions; this meant 12 to 14 focus groups per day.

No standard sampling method was used to assign associates to focus groups. Some supervisors selected participants based on birthday month, others sent whoever was available and had not already participated. In the end,

Figure 3
Mean Total Survey Score per Site vs. Each Site's TRIR, 2010

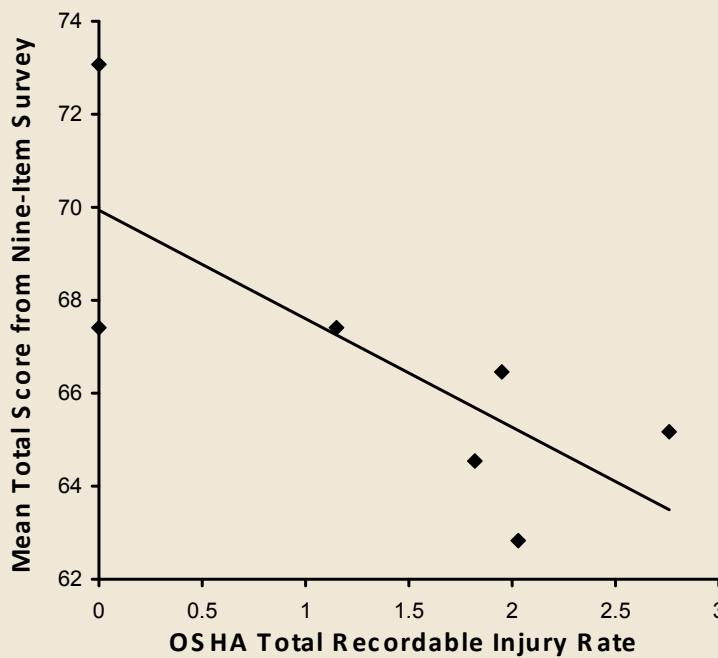


Table 2

Focus Group Participants per Plant

Plant	Employee population	Sample size
2	560	140
3	650	260
4	450	180
5	250	100
7	1,400	560

approximately 40% of associates at each of the five sites participated in a focus group. Table 2 depicts the number of associates at each site who participated in a focus group.

The Process

Each focus group was designed to generate an all-inclusionary, free-flowing conversation around the nine survey items. Chairs were set in a circle and the interns, who activated specific topics of conversation and recorded participants' verbal behavior, never sat next to each other.

Only first names were used and participants were only identified by department and work shift in the interns' records. The interns had the overall results of each site's perception survey, but they had no information related to the plant's TRIR. Also, they did not know which participants had previously taken the nine-item survey.

The interns started each focus group by introducing themselves as graduates of Virginia Tech and stated their purpose: "We were hired by Shaw to study a survey that has been administered monthly to 10% of the associates at seven different plants. We have the results for each question at your plant. We want to talk with you about these survey results and get your ideas about what would be needed for you to rate each question a '10.'"

The interns explained that they knew little about the division's operations or culture, and were there to learn from the associates. They started by reading an item from the culture survey that would generate open discussion (often items 2, 4 or 8 from Figure 2).

They asked participants their perceptions related to the item (e.g., specifics of the plant environment and related behaviors of coworkers), then solicited ideas for ways to raise the perception score for that item. In other words, after an open discussion was initiated and participants identified specifics that influenced their perceptions, they offered strategies for increasing the score for that survey item.

Other survey items were examined with the same sequence of two questions:

1) What led to the perceptions you feel regarding this survey item?

2) What would it take to increase this survey score?

During their stay at each plant, the interns varied the topics discussed between focus groups in order to cover perceptions of each survey item.

Results

For each focus group, one intern was randomly selected to lead the discussion, while the other recorded (via laptop) every verbal statement given by a participant that was related to the conversation topic. Thus, these data consist of lists of sentences that reflect participants' concerns, opinions, attitudes, suggestions and general commentary related to a particular survey item.

All recorded comments per focus group at each site were compiled, then printed as three separate documents. These compilations were then evaluated to determine whether a comment was positive or negative. If a statement was not obviously positive or negative with regard to the plant's safety-related culture, it was considered neutral. The sidebar (right) presents a representative sample of 10 positive and 10 negative comments. Table 3 (p. 50) depicts the number of positive, negative and neutral comments per site.

In Table 3, the plants are listed according to their 2010 TRIR, with plants 2 and 5 having no recordable injuries and plant 7 having the highest TRIR. A connection between the tone of commentary during the focus groups and the number of recordable injuries is evident. The focus groups at plants 2 and 5 (no recordable injuries) gave the highest number of positive safety-related statements, while the most negative comments came from the focus groups at plant 7 (highest TRIR).

The percentages of positive and negative comments for the focus groups at each site were calculated and compared systematically across locations. Figure 3 depicts a scatter plot of these percentages as a function of each site's 2010 TRIR, as well as the best-fit straight line between the data points for the positive and negative comments.

The two functions show rather consistent relations between the tone of the commentary and TRIR, as noted with regard to the frequencies shown in Table 2. Specifically, the percentage of positive comments decreased as the TRIR of the plant site increased, while the percentage of negative comments increased directly with TRIR.

Implications

It is important to note that the two interns were complete strangers to all associates. They knew little about the operations, policies, injury statistics, the division's culture in general or operations at a particular site. Furthermore, the categorization of statements as positive, negative or neutral, accomplished with no linkage to a particular site, was straightforward. As noted, if a comment did not unmistakably reflect a positive or negative sentiment regarding safety policies or procedures, or the actively caring mission, the response was simply classified as neutral.

Since potential bias (e.g., selective perception) regarding focus group administration and data analyses was minimized, how meaningful or useful are the results shown in Table 2 and Figure 4 (p. 50)? From one perspective, the surprisal value of these findings is low. In other words, it is certainly

Sample of Positive & Negative Comments From Focus Groups

not remarkable that the qualitative analysis of verbal commentary from the focus groups was consistent with the survey results. Both the survey and the focus groups assessed participants' attitudes or sentiments regarding safety-related policies, goals and procedures, so a correlation between these measures and frequency of OSHA recordables was expected and not surprising.

On the other hand, these results distinctly support a connection between occupational injuries and safety-related perceptions/attitudes as estimates of a work culture. Other investigators have shown how certain interventions addressing the human dynamics of safety can prevent work injuries (Cooper, 2009; Grindle, Dickenson & Boettcher, 2000; Sulzer-Azaroff & Austin, 2000), but to the authors' knowledge, this is the first report of direct relations between two measures of an organization's safety culture (i.e., perceptions and verbal commentary) and TRIR. It is commonly proposed that organizational culture affects occupational safety, but direct empirical verification of this common sense is not common.

Conclusions

The authors do not claim to have developed a reliable and valid measure of perceptions related to organizational culture and occupational injuries. Indeed, the survey committee of the Fibers Division of Shaw Industries has already modified the brief survey, and the survey committees at each of the seven sites add two of their own customized items for monthly assessments. Nor do the authors maintain that this short, simplistic perception survey is a replacement for more comprehensive surveys that can be developed and delivered.

However, the authors believe the brief survey has beneficial applications that are impractical with longer surveys. Specifically, the brief survey can be readily administered periodically, as is currently the case in the Fibers Division. As a result, changes in perceptions can be tracked and possibly linked to specific interventions designed to influence organizational culture. In addition, the simplicity of the survey questions can activate interpersonal conversations relevant to improving the survey results. For example, several suggestions for improving safety-related policies and procedures at specific sites emerged from the focus groups, and many are being considered by relevant work teams at these sites.

A critical difference between the typical safety culture survey tool and the approach discussed here is the relatively narrow focus of this assessment. Whereas more comprehensive perception surveys used to assess organizational culture address a larger number of safety-relevant domains (e.g., management and peer support for safety, personal responsibility for safety, various safety management systems such as training, incident analysis, regulations/procedures, leading and lagging indicators), the nine-item survey targeted only perceptions related to inclusion and self-motivation with regard to occupational safety.

Positive

- Gene goes a step above Shaw policies when it comes to safety things. Gene's added extra things to the requirements to make us safer. That's the thing about maintenance, we run a real tight group.
- When we see someone out on the floor doing something unsafe we're going to say something.
- Our community atmosphere comes down from the top.
- Our safety stuff spills into our homes—from using hearing protection when cutting the grass to using gloves regularly.
- People need to learn everything doesn't revolve around them—it's about everybody.
- I feel like I belong here because I work here.
- It's best to work together because eventually you're going to be behind and need the help, too.
- The manager will tell us we're appreciated and "good job."
- The theme management has created is "we care about you." They're not out to get you anymore.
- There's a family atmosphere here. We're all willing to care.

Negative

- Because I'm on the first response team, I've got to help them. But if they're doing something stupid, it's their problem.
- I've worked here 35 years and I've never had an accident and I look out for others and it's gotten lately that they're pushing this stuff down our throats. It's gone too far.
- It used to be all voluntary now it's mandatory. Participate or hit the door.
- Overall lab technicians want to be separate and left out of the BBS stuff. They want less inclusion and feels like it's all a game.
- Some places in the safety programs go overboard. Like with the BBS cards and the surveys. They're making us fill out those cards and sometimes it's just straight "pencil whipping."
- Actively caring can be "nosy busybodies" in your business.
- Some people take actively caring and turn it into "actively tattling."
- It's a job to me. I don't belong.
- When I'm approached with safety-related feedback, I'm thinking "don't tell me what to do—you make the same amount as me!"
- I feel like "I care about you, but you don't care about me."

While the research literature supports the use of the particular survey items to measure perceptions of self-motivation and inclusion (Deci & Flaste, 1995; Deci & Ryan, 1995; Geller & Veazie, 2010), this is the first study to show a connection between these constructs and occupational safety. Follow-up research is needed to compare the relative effect of the various aspects of human dynamics related to perceptions of self-motivation and inclusion (e.g., from perceptions of personal control and competence to sentiments of interpersonal trust and interdependency).

Finally, this study reviewed several practical safety-relevant procedures implemented by a large manufacturing company, from vision development and committee planning to culture assessment for continuous learning and amelioration. Although each site involved had a mature BBS process in place, management was not satisfied with the results. Only two sites were injury-free in 2010. Thus, in the spirit of never-ending improvement, the steps outlined were implemented and evaluated.

Perhaps most importantly, conversations about

Table 3

Focus Group Comments at Each Plant Site

Plant	TRIR	n	No. of positive comments	No. of negative comments	No. of neutral comments
2	0.00	549	346	131	72
5	0.00	374	202	140	32
3	1.82	549	86	295	168
4	1.95	443	129	128	186
7	2.03	787	136	445	206

inclusion, self-accountability, self-motivated behavior and actively caring for safety were initiated and sustained in earnest.

Since verbal behavior determines culture, and vice versa, it seems this company is on its way to improving its safety culture. The authors hope some applications, results and implications presented will inspire other organizations to study their employees' perceptions of inclusion and self-motivation for injury prevention and, thereby, pursue an actively caring safety culture. **PS**

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Figure 4

Positive vs. Negative Comments as a Function of Each Plant's TRIR, 2010

