



THE HAPPINESS FACTOR

Happy Employees Are Safer Employees

By Patrick T. Ragan and Brooks Carder

"THE TIMES THEY ARE A-CHANGIN'." While a Bob Dylan quote might seem an odd introduction, it is fitting for what is happening in safety today. References to culture, positive psychology, quality, trust and happiness are showing up at the edges of safety. Even further off the edge, names such as Deming, Baker, Kahneman, Tversky, Seligman, Csikszentmihalyi and Lyubomirsky are being referenced; what do they have to do with safety?

To make it to the next generation of incident avoidance, safety professional may have to reconsider the foundations of that change. The basics still must be covered: guards in place, skills trained, interlocks on, even PPE where needed. However, to get beyond counting injuries until something explodes, safety professionals must do more than put on their safety glasses and manage the ABCs of behavior. Safety professionals must find ways to impact decisions before they become problems and not just react better and faster in an attempt to limit severities. The authors strongly believe that positive psychology, or the happiness factor, is one of the elements that must be understood and applied. A positive or happy safety culture is an element in the

next generation of safety's evolution. Workers must want to do the right thing all of the time, not just follow the rules when someone is watching.

Science of the Happiness Factor

One of the authors had the opportunity to attend six of W. Edwards Deming's seminars during the last few years of Deming's life. The amount of time Deming spent on psychology in these seminars increased dramatically. Toward the end of the seminars, he held evening meetings on the psychology of change in which Deming sat in the audience and a psychologist directed

the session. The adoption of Deming's principles and methods required managers to change. Deming wanted to know what psychologists could tell him about how to accomplish that change.

Since Deming's death in 1993, psychology has changed considerably. First, cognitive psychology supplanted behaviorism as the dominant field in scientific psychology. This was underlined in 2002 when Daniel Kahneman became the first psychologist to win the Nobel Prize (in economics as there was no prize in psychology) for his work with Amos Tversky in cognitive psychology. Perhaps of equal importance, Seligman and Csikszentmihalyi (2000) introduced a new discipline: positive psychology. They pointed out that the history of psychology had been dominated by responses to pathology and suggested that it was now time to "emphasize positive subjective experience; positive traits such as hope, wisdom, creativity, future mindedness, courage, spirituality, responsibility and perseverance; in positive institutions." Moreover, they argued it was time to consider how to prevent pathology rather than to treat it. An important objective was to increase well-being and life satisfaction in healthy people. This could not have happened without the shift to cognitive psychology since behaviorism has no place for concepts like affect and consciousness. Interestingly, Kahneman has shifted his research to the study of affect and positive psychology (Wikipedia, 2019).

Seligman and Kahneman are among the most prominent psychologists of the early 21st century. The work of psychologists is often referred to as soft skills as if they are somehow fuzzier than the hard skills of engineers and physicists. There is nothing soft about the scientific accomplishments of Seligman and Kahneman, and, unlike many of their predecessors in academia, they have seen fit to bring their knowledge into the real world to improve the human condition.

While Seligman's earlier work in this field is focused on happiness, more recently he settled on the concept of well-being, and uses the PERMA model (i.e., positive affect, engagement, positive relationships, meaningful life and accomplishment) to assess well-being (Seligman, 2011).

Positive affect has generally been thought of as a result of successful performance. However, research in positive psychology has produced a substantial body of evidence that positive

KEY TAKEAWAYS

- **The happiness factor is real and it really works. The essence of quality and what should be the essence of modern safety practice is the application of science.**
- **Cognitive psychology has supplanted behaviorism as the dominant field in scientific psychology. Research in positive psychology has produced a substantial body of evidence that positive affect is a driver of success.**
- **Employee well-being and happiness can be measured and used to provide direction and support continuous improvement of safety efforts.**

TABLE 1
VALIDATION STUDY DATA:
WEAK VS. STRONG SITES

Job satisfaction factor	Strong sites % yes	Weak sites % yes	p value Yates corrected chi-square
Supervisors treat subordinates with respect	93%	83%	0.030
Managers treat subordinates with respect	91%	76%	0.002
Employees trust the information that management provides about the company	95%	66%	0.000

TABLE 2
POSITIVE, NEGATIVE
& NEUTRAL SUBJECTS

	Correctly identified coherence	Incorrectly identified coherence	Probability
Positive mood	62%	31%	0.05
Neutral	61%	48%	Not significant
Negative mood	53%	50%	0.001

affect is also a driver of success. Lyubomirsky, King and Diener (2005) reviewed 225 papers on the relationship between happiness and success. They found ample evidence that happiness leads to success. In correlational studies, they show that happiness appears first. In experimental studies, treatments that increase happiness lead to more successful performance.

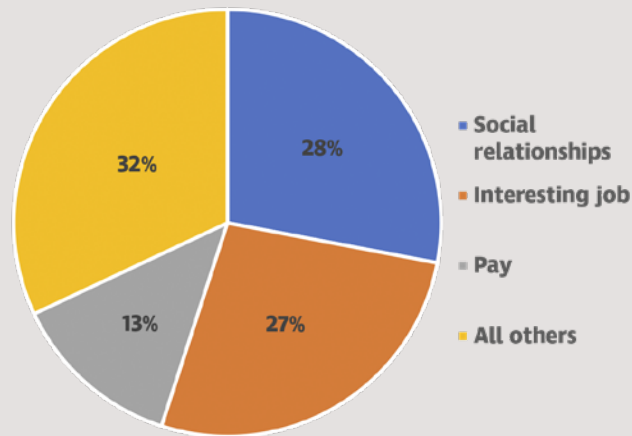
Importance of Employee Satisfaction & Happiness

The authors' own data confirm the importance of employee satisfaction and happiness on safety performance (Carder, 2014). Since 1993, the authors have surveyed more than 100,000 employees in various companies. The surveys are highly reliable and all of the questions are valid, which means they correlate with safety performance. Some survey questions have no explicit relationship to safety but have an obvious relationship to employee morale.

Table 1 shows data from a validation study. The authors worked with a large manufacturing company with 80 plant sites. For the validation study, the authors chose several sites with incident rates higher than the company average (the weak sites) and several sites with incident rates lower than the company average (the strong sites). To be valid, a question required significantly higher scores at the strong sites compared to the weak sites.

There are several elements of note in Table 1. First, the weak sites did not score that badly: the company has an excellent safety record and a recordable rate around 0.5. That makes this a stern test of validity, but the strong sites did score significantly higher. These questions represent important factors in job satisfaction. De Neve and Workplace Well-Being Committee (2018) studied the drivers of job satisfaction statistically and found that the most important driver was social relationships on the job. This accounted for 28% of the variance, and the most important relationship by far was the relationship with one's manager.

FIGURE 1
DRIVERS OF EMPLOYEE
SATISFACTION VARIANCES



Note. Data adapted from "Work and Well-Being: A Global Perspective," by J.-E. De Neve & Workplace Well-Being Committee, 2018. In *Global Happiness Policy Report*, by Global Happiness Council (Ed.), pp. 74-127.

While the validation study results do not make an airtight case for causation, it is much more plausible that happier employees are safer rather than safer employees are happier, suggesting that the happiness factor is a driver, not just a follower, to good safety performance.

Carder (2019) describes a possible mechanism by which happiness improves performance. This is particularly relevant to safety, although it comes from an unexpected place. The Remote Association Test is used as a fundamental test of creativity. Participants are presented with three words and asked to come up with a fourth word that is associated with all three. For example, consider the words *cottage*, *Swiss* and *cake*. The obvious solution is *cheese*. A more difficult example could be the words *dive*, *light* and *rocket*. Only about 20% of subjects came up with the correct answer, *sky*, in 15 seconds (Bolte, Goschke & Kuhl, 2003). Of course, some triads do not have a shared association that is recognized by everyone, such as *dream*, *ball* and *book*.

An interesting and surprising fact is that subjects appear to know there is a match before they know what it is. Subjects are asked to respond within 2 seconds as to whether a triad has a match or not, which is not enough time to solve the problem. In this study, participants were 12% better than chance at predicting whether a solution existed; this is intuition in action. Researchers constructed an intuitive index based on performance in this test.

You might wonder what the Remote Association Test has to do with the safety performance of the company. Here is the crucial test. Before computing an intuition index, subjects were asked to think about happy or sad events in their life to illicit emotional responses. Happy subjects more than doubled their intuition index, while sad subjects lost the ability to intuit in this test (Table 2).

Intuition is important to creativity and is likely important to safety as well. It should include the ability to sense that something is wrong early in the game. People need to feel comfortable listening to that little voice or feeling that something is amiss and take the time to confirm whether it is or is not. Teach people to not just notice the motor that sounds a little wrong, the color of the effluent that is a little darker than it should be, an unusual demeanor of a coworker, or their own mood when it is causing distraction from work. Teach them to trust their intuition and act to understand it before something more serious happens.

Paying attention to happiness is not just reacting to noticing a negative; it is proactively an important step to elevate a company to a higher level of safety performance. Improving happi-

ness is important to achieve a culture in which people want to use guards, follow training, and understand and maintain process design, a culture in which workers wear PPE and follow the rules because they believe it is the right thing to do, not just to satisfy their boss. A belief-based safety culture is much stronger and better than a rule-based safety culture.

On a clear day, on an open stretch of highway, do you allow yourself to drive 5 mph above the speed limit? In a residential area with children playing, are you likely to slow down below the 35-mph speed limit? Which option has more power over your actions: a rule forcing you to do something or doing something because you believe it to be the right thing to do?

Consider this example: In orientation to a new company, a trainer points out that employees in the manufacturing area must wear safety eyewear at all times. The new employee remembers that at his last job, he was told to wear his safety eyewear all the time, but people only wore them when they worked with the machines. Supervisors walking through never wore them. In the new job, workers in the area wear their safety eyewear; even supervisors and managers put them on when they walk through the area. The orientation training discussed the low but real hazard of eye injuries in the area.

Trust contributes to a happy work environment. Fear detracts from a happy work environment. In the worker's last job, workers and supervisors were not following the rules. This culture would not promote trust that rules would be followed. It might also create fear that supervisors could arbitrarily enforce a rule. If the worker decides to follow the rule, he might feel like an outcast from coworkers. This worker might find himself in an untenable work environment and will likely find it difficult to be happy with this circumstance. In the new job, it is obvious to him that coworkers and supervisors know and follow the rule. He is more likely to believe this rule, and other rules and expectations. In which job would you feel more comfortable, safer or happier?

This case may seem trivial, but the example illustrates that workers at companies with high workplace trust are more likely to comply with safety expectations than those without it (Starnes, Truhon & McCarthy, 2016). In organizations with high workplace trust, workers tend to do the right thing without the need for constant supervision. Workers properly tie off lanyards, follow confined space procedures, address alarms on control panels, complete inspections not just document them and remedy trip hazards. Also, and possibly most importantly, when workers encounter an unknown situation, they feel empowered to find the information necessary to address the situation. They have the confidence that pausing to ensure that they are doing the right thing will not be perceived as inadequacy in this positive safety culture. They will be applauded for making the extra effort to do the right thing. How many poor management of change origin events could be prevented if workers felt more comfortable, even expected, to stop and get necessary information or help before moving into unsure circumstances? Workers more reliably taking proper actions regardless of a specific set of events is a big step toward preventing low-frequency, high-consequence events (Rosenthal, Kleindorfer & Elliott, 2006). The happiness factor is real and it really works.

Positive workplace cultures tend to improve more than simply the targeted management system. When employees trust management to do the right thing in safety, they tend to trust them to do the right thing in labor relations, environmental actions, community relations and business management. Trust and respect are contagious, and once an organization builds them in one

area, they tend to spread to others. Building a joyful, happy place to work is an objective that benefits all involved. According to Donald Clifton (cited in Robison, 2003), "Happy employees who are satisfied with their job will be more engaged, more creative, do superior work and be less likely to leave the company."

Seligman and Csikszentmihalyi (2000) explain:

Positive psychology explores ways to help people flourish rather than simply function. This view provides rich possibilities for executives who want to improve company performance by encouraging, promoting and expanding human potential. Applying positive psychology can have a direct impact on employee and customer engagement and loyalty—and thus the bottom line.

Collecting Data on Positive Psychology

How should a safety professional collect data on an organization's positive psychology and happiness factor? A first step would be to measure employee well-being. A skilled interviewer can get useful information on employee well-being. Numerous free scales exist that can measure well-being and job satisfaction. A good place to start is the ISSP (2015) survey on work orientation. The job satisfaction score on the survey is highly correlated with employee retention. In addition, this is the survey that was used to measure the impact of 12 drivers of employee well-being. An alternative is a questionnaire from University of Pennsylvania (2019) on work-life satisfaction. The university's Authentic Happiness website hosts surveys that have been taken by more than a million users, and thus have extensive norms. The site also includes a work-life questionnaire and a workplace PERMA profiler.

If an organization's well-being scores are low, communicate with senior leadership about the findings and the implications for safety and productivity (see Carder, 2019, for more on the impact of happiness on productivity and organizational success). What is indicated is a change in the organizational culture, which must be driven from the top. For high positive scoring areas look into why they score higher. Then take those lessons to other lower scoring areas.

To give readers an understanding of what change may need to occur in the workplace, a study from De Neve and Workplace Well-Being Committee (2018) analyzed the drivers of employee satisfaction, which they found to be: social relationships on the job; interesting job; pay; work-life imbalance; difficulty; stress and danger; job security; opportunities for advancement; independence; skills match; usefulness; working hours mismatch; and working hours. The last two are not significant drivers. The strongest driver, social relationships on the job, was dominated by the relationship with one's manager. Social relationships on the job accounted for 28% of the variance in job satisfaction, while having an interesting job accounted for 27%, which indicate substantial correlations; the variance for pay drops down to 13% (Figure 1). This is in line with 20 years of survey results from the authors' own research. The authors found that many questions in their own surveys related to the employees' relationship with management.

If this change sounds too ambitious, it should not. At the first organization where the authors deployed their survey, the company president said that the authors had done more to change the culture of the company, not just its safety culture, than any other initiative.

As with any important change, the authors recommend that safety professionals follow a process. The authors have found the following process effective:

1) Gain initial support by managers. Find those who will advocate for the idea of engaging the happiness factor to create lasting safety culture change to reduce incidents. Gaining manager support can be facilitated by referencing the many articles in business publications touting the value of positive psychology in productive and good company cultures.

2) Start walking the talk. Rather than focusing on the deficits of an existing program, build from strengths and do not ignore problems. Frame discussions with questions that elicit the identification of strengths, not weaknesses. Another technique that is widely employed in positive psychology is known as the three blessings. At the end of each day, the worker writes down three things that went well along with a brief explanation of why. Ask employees to do this daily for 3 weeks, sharing some of the answers in groups. This will help build employee confidence and promote a positive attitude toward safety. Ask others who show interest in helping make a change in safety processes to do the same. Lead by example and allow others to participate in the process.

3) Identify a tool to establish a baseline. This article references several positive psychology or happiness factor surveys. Conduct one of these surveys and analyze the results to learn where the organization might be experiencing negative psychology or grumpiness factor and where evidence of positive psychology or happiness factor can be found. Develop a small team to consider why these differences exist in the organization and define some actions to change the negative and learn from the positive. Survey data will help this process.

4) Monitor change and adjust understanding and actions as needed. Support people and groups who embrace the change and find ways to cultivate it. Try to help those who do not. Spend time on those who embrace the change as their success will be much more persuasive to those who remain skeptical. Emphasize the positive to improve the organization's overall happiness factor.

5) While the organization may begin to feel the effects of attention to happiness, measure progress and readminister the survey after 12 to 18 months. The second survey cycle should indicate where the approach is showing results and where it is not.

6) Return to step 1 and apply the word *more* liberally.

This is an improve-and-learn-as-you-go process. The authors used this process for more than 20 years and it yielded meaningful, usable results every cycle.

Conclusion

The happiness factor is real and it really works. Cognitive psychology has replaced behaviorism as the dominant field in scientific psychology. Behavior-based schemes may work on routine frequent tasks, but they have little value in avoiding low-frequency, high-consequence events. Some even argue that focusing on minor incidents may decrease the likelihood of seeing early warning signs of low-frequency, high-consequence incidents (Manuele, 2018). According to the Baker Panel report on the BP Texas City refinery incident:

BP has emphasized personal safety in recent years and has achieved significant improvement in personal safety performance, but BP did not emphasize process safety. BP mistakenly interpreted improving personal injury rates as an indication of acceptable process safety performance. . . . BP's reliance on this data, combined with an inadequate process safety understanding, created a false sense of confidence that BP was properly addressing process safety risk. (BP U.S. Refineries Independent Safety Review Panel, 2007)

A new generation safety approach will target the ability of positive psychology or happiness factor to affect the decision-making processes before the unsafe behavior happens and, more importantly, will address nonroutine low-frequency, high-consequence events.

Employee well-being can be measured. The transparency and trust gained by conducting a validated survey can lead to actions that improve safety and overall work performance. The consequences of these actions can be observed in follow-up surveys to retool and continuously improve the organization's happiness factor. **PSJ**

References

- Bolte, A., Goschke, T. & Kuhl, J. (2003, Sept.). Emotion and intuition. *Psychological Science*, 14(5), 416-421.
- BP U.S. Refineries Independent Safety Review Panel. (2007). The report of the BP U.S. Refineries Independent Safety Review Panel (Baker Panel report). Retrieved from www.csb.gov/assets/document/baker_panel_report1.pdf
- Carder, B. (2014). A method for changing the system, process and culture underlying safety performance. *Journal for Quality and Participation*, 37(2), 29-33
- Carder, B. (2019). The happiness effect. *Quality Progress*, 1, 25-30.
- Deming, W.E. (2000). *The new economics for industry, government, education* (2nd ed.). Cambridge, MA: Massachusetts Institute of Technology Press.
- De Neve, J.-E. & Workplace Well-Being Committee. (2018). Work and well-being: A global perspective. In Global Happiness Council (Ed.). *global happiness policy report* (pp. 74-127). Retrieved from <https://s3.amazonaws.com/ghc-2018/GlobalHappinessPolicyReport2018.pdf>
- International Social Survey Program (ISSP). (2015). Work orientations IV. Retrieved from <https://dbk.gesis.org/DBKsearch/DESC2.asp?no=6770&tab=3&db=E>
- Lyubomirsky, S., King, L. & Diener, E. (2005). The benefits of frequent positive affect: Does happiness lead to success? *Psychological Bulletin*, 131(6), 803-855.
- Manuele, F. (2018, September). Getting off the plateau. *Professional Safety*, 63(9), 50-57.
- Minter, S. (1997). Dan Petersen: Why safety is a people problem. Retrieved from www.ehstoday.com/news/ehs_imp_32659
- Robison, J. (2003, Sept. 11). The power of positive psychology. Retrieved from <https://news.gallup.com/businessjournal/1177/power-positive-psychology.aspx>
- Rosenthal, I., Kleindorfer, P.R. & Elliott, M.R. (2006). Predicting and confirming the effectiveness of systems for managing low-probability chemical process risks. *Process Safety Progress*, 25(2), 135-155.
- Seligman, M.E.P. (2011). Building resilience. Retrieved from <https://hbr.org/2011/04/building-resilience>
- Seligman, M.E.P. & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist*, 55(1), 5-14.
- Senge, P.M. (1990). *The fifth discipline: The art and practice of the learning organization*. New York, NY: Doubleday.
- Starnes, B.J., Truhon, S.A. & McCarthy, V. (2016, Jan. 29). A primer on organizational trust. Retrieved from <http://asqhdandl.org/uploads/3/4/6/3/34636479/trust.pdf>
- University of Pennsylvania. (2019). Questionnaire center. Authentic Happiness. Retrieved from www.authentic-happiness.org/testcenter
- Wikipedia. (2019). Daniel Kahneman. Retrieved from https://en.wikipedia.org/wiki/Daniel_Kahneman

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