

Zhang, H.; Wiegmann, D. A.; von Thaden, T. L.; Sharma, G.; Mitchell, A. A. **Safety culture: A concept in chaos? *Proceedings of the Human Factors and Ergonomics Society 46th Annual Meeting.* 2002, 1404-1408.**

Safety Culture: The enduring value and priority placed on worker and public safety by everyone in every group at every level of an organization. It refers to the extent to which individuals and groups will commit to personal responsibility for safety; act to preserve, enhance and communicate safety concerns; strive to actively learn, adapt and modify (both individual and organizational) behavior based on lessons learned from mistakes; and be rewarded in a manner consistent with these values.

Safety Climate: The temporal state measure of safety culture, subject to commonalities among individual perceptions of the organization. It is therefore situationally based, refers to the perceived state of safety at a particular place at a particular time, is relatively unstable, and subject to change depending on the features of the current environment or prevailing conditions.

Bye, R. J.; Aalberg, A. L.; Royrvik, J. O. D. **What we talk about when we talk about HSE and culture - a mapping and analysis of the academic discourses. *Safety Science.* 2020, 129**

“Some perspectives on culture are dominant, such as the conceptualization of culture as: 1) shared and aligned perceptions and attitudes, 2) culture as an ideational entity, and 3) culture as one factor among several factors that influence Health, Safety and/or Environment.

ACS Committee on Chemical Safety, Safety Culture Task Force. *Creating Safety Cultures in Academic Institutions: A Report of the Safety Culture Task Force of the Committee on Chemical Safety*; American Chemical Society: Washington, DC, 2012; Pages 11-12 (Nuclear Regulatory Commission. Final Safety Culture Policy Statement (NRC-2010-0282). Federal Register. June 14, 2011, Vol. 76, No. 114, p 34773. Washington, DC: Government Printing Office.)

“On June 14, 2011, the NRC issued its final “Safety Culture Policy Statement,” which defined a safety culture as: “an organization’s collective commitment, by leaders and individuals, to emphasize safety as an overriding priority to competing goals and other considerations to ensure protection of people and the environment.” The NRC specified nine traits of a good safety culture:

1. Leaders demonstrate a commitment to safety in their decisions and behaviors;
2. Problem identification and resolution;
3. All individuals take personal responsibility for safety;
4. The process of planning and controlling work activities is implemented, so safety is maintained;
5. Continuous learning;
6. Positive, nonpunitive environment for raising safety concerns;
7. Effective safety communication;
8. Respectful work environment; and
9. Questioning attitude.”

Schroeder, I.; Huang, D. Y. Q.; Ellis, O.; Gibson, J. H.; Wayne, N. L. Laboratory safety attitudes and practices: A comparison of academic, government, and industry researchers. *Journal of Chemical Health and Safety*. 2016.

“Safety culture refers to an organization’s commitment to safety, in which safety sets priority over other processes that might be important to the organization.”

***While multiple institutions were involved in the development of the survey, there was no discussion about how the team determined that their survey questions were centered in a theoretical conception of Safety Culture.

“Overall, respondents from industry researchers stood out by reporting a higher acceptance of safety training and PPE compliance with respect to wearing a lab coat consistently...a more centralized and hierarchical structure in industry research labs may result in a greater acceptance of what could be considered the norm. Furthermore, workers in many industries actively participate in all aspects of work-related safety practices, and a better safety outcome was documented for industries that involved workers in this process.”

“A decentralized organizational safety structure could explain the diminished PPE compliance behavior for researchers from academic and, to some extent, government labs. A decentralized safety structure was stated as one of the problems in improving the safety culture at a large academic institution.”

Steward, J. E. The status of safety culture at Louisiana State University. Ph.D. Dissertation, Louisiana State University, Baton Rouge, LA, 2018.

“Aside from the general consensus, there is neither an accepted model for safety culture nor a clear cut definition.”

The concept of safety culture derives from the concept of organizational culture. “the nature of organizational culture has been a vigorous debate for almost 40 years. There is universal agreement that it exists, and that it plays a crucial role in shaping behavior in organizations. However, there is little consensus on what organizational culture actually is, how it influences behavior, and whether it is something leaders can change.”

“The basic conclusion is that safety is everyone’s responsibility. If the goal is to have a strong culture of safety, LSU must provide a campus environment that supports and empowers the health and safety practices of their community. The flat structural organization, the concept of academic freedom, and a general laissez-faire attitude toward safety makes this a difficult process. This process must start at upper management with strong commitment and supporting actions to improve safety. The process also needs to be approached in the lab level. Students must have the proper safety tools, training, and the support of their principle investigator and his management personnel. In short, to improve Safety Culture, there needs to be a renewed commitment to make safety a core value for all academic research, scholarship, and teaching.”

***Uses “Safety Culture” in the title – discusses “Safety Culture” versus “Safety Climate” in the dissertation – then falls back on doing a “Safety Climate” survey!!!

Gonzalez, M. E. *Defining Academic Safety Culture: A National Study*. Ph.D. Dissertation, Texas Tech University, Lubbock, TX, 2019.

“[T]his study will define safety culture as ‘the shared values, beliefs, attitudes, social and technical practices, policies, and perceptions of individuals in an organization that influence the opportunity for accidents to occur.’ This study acknowledges that the safety culture that exists in an institution can be either positive or negative, depending on the overall influence it provides on the organization and the individuals comprising the organization.”

“A health safety culture will be one that minimizes the opportunity for accidents and near-misses and are characterized by open communication, a system designed to continually improve upon the culture of safety, and provides for the confidence in the efficacy of training and preventative measures.”

Pupulidy, I. *Self-designing safety culture: A case study in adaptive approaches to creating a safety culture*. *ACS Chem. Health Saf.* 2020, 27, 24-33.

“RESEARCH TO UNDERSTANDING THE TERM
SAFETY CULTURE

Academically, safety culture is also not unilaterally defined. “Due to its interdisciplinary nature, the concept tends to be of interest to different academic disciplines, from social sciences such as sociology, psychology and anthropology to more technical disciplines such as maintenance, reliability engineering and systems safety. Consequently, the lack of a unanimous consensus on the concept is understandable.” It became clear that there was no single definition of safety culture that could serve as a guideline for the myriad of perspectives or operational missions in the US Forest Service. Recognizing these challenges, IOL moved toward an examination of safety culture history. Specifically, we asked where safety cultures were flourishing. We noted success in nuclear power and aviation, so these two professional areas became a research focus.

IOL turned to Professor Edgar Schein’s work to add to our understanding of the qualities of culture. The essence of culture is defined by Schein as “a pattern of shared assumptions that the group learned as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think and feel in relation to those problems.” Though not specific to safety culture, this definition helped us to develop a model for our research, which facilitated understanding the multiple, conflicting ideas and deep assumptions surrounding safety culture.

The term safety culture is prominent in the nuclear literature following the Chernobyl disaster. “After the Chernobyl accident in 1986, the International Nuclear Safety Group (INSAG) introduced the concept of safety culture. Today it is a common and widely used concept in the nuclear industry and in other safety conscious industries.”¹⁰ Following this accident “people” began to detect and attach a great deal of importance to the critical role of human and organizational factors.” Process safety principles emerged as organizations and academics attempted to describe ways to create or enhance safety cultures beyond nuclear power. IOL recognized the existence of process safety management principles and saw the importance in an approach tethered to agreed upon values stated as principles. This was referred to as doctrine in the Forest Service, which began to rewrite rules as principles. Doctrine was actively pursued by the fire organization.

Professor James Reason’s work was an initial cornerstone for one of the first accident investigations that departed from the traditional process. This approach was improved drastically by incorporating the work of Professor Sidney Dekker. Professor Reason’s work was recognized as a comprehensive synthesis of safety culture theory. The Global Aviation

Information Network (GAIN) published a roadmap to a just culture in 2004 based on Reason's work. It contained a synopsis of Reason's, components of a safety culture, which posited that safety culture was made up of five subcultures: reporting, flexible, learning, just, and informed cultures (see Figure 2).

This appeared to be a reasonable roadmap for the creation of a safety culture. Focus group dialogues and interviews explored the existence of these subcultures in the wildland fire organization and were facilitated to evaluate the efficacy of each. This led to the conclusion that we exhibited strong characteristics consistent with a flexible culture. However, we were deficient in the other four key areas.

Focus group discussions designed to explore just, reporting, learning, and informed subcultures pointed to three key areas of concern:

1. The sense in the field that the informed culture already existed, and additional work was not required in this area.
2. The sense that we do not need to report our errors and near misses, as they will make us look bad in the eyes of our peers and seniors.
3. Just culture dialogues specifically pointed out a lack of trust in the fairness of traditional investigations and that drawing a line between acceptable and unacceptable behavior was not a simple issue."

"Due to the myriad of definitions and meanings we found it difficult, if not impossible, to directly address safety culture and to change it for the better. However, the IOL team realized there were key elements that could lead toward a culture of safety. Central to this was understanding that "information is the currency of safety" and that information sharing or, better said, learning was central to success. Our initial response was to explore the area of trust through the review of accidents and incidents, a process we later called the Learning Review, which served as a platform to introduce the agency to the concepts of psychological safety and social psychology. Learning is not simple, and we found it only takes place when the learners are willing."

"Building doctrinal boundaries into policy/guidance recognizes what field personnel already know, that not all rules can be followed in all situations, and rules cannot be developed to meet every possible scenario. Incorporating flexibility into guidance builds credibility in the guidance and the trust in the organization. It also opens the door for information regarding innovations. This helps to create a willingness to follow instruction and guidance, as well as to provide feedback."