



Dysfunctional Practices

that Kill Your Safety Culture
(and what do to about them)

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Forewords

I DID NOT REALIZE THE VARIOUS DISADVANTAGES of using labels and other mental short-cuts (e.g., fishing for faults, blaming the victim, etc.) until reading, *Dysfunctional Practices*. This is but one lesson in this “page turner” in which Tim Ludwig describes research-based principles of human dynamics so you can relate to them, understand them, and apply them. You’ll grasp how these principles of psychological science explain realistic life events in the workplace—often dysfunctions—and you’ll realize how to correct them to develop effective injury-prevention interventions.

Tim’s book offers a most memorable and invaluable learning experience. In *Dysfunctional Practices* you will learn practical solutions to time-worn safety dysfunctions that will enable you to help achieve and sustain a work culture of people routinely actively caring for the health, safety, and wellbeing of others.

Timothy D. Ludwig is one of my former Ph.D. students. Teachers are reinforced whenever they note a former student making a positive difference. My positive reinforcers: Tim is a decorated teacher as a Distinguished Graduate Faculty at Appalachian State University. He is a highly respected researcher with scholarly books and dozens of research articles to his credit. He is a successful consultant with clients all over the world. His keynote speeches are the rave at professional conferences. And his work with the non-profit Cambridge Center for

Behavioral Studies (CCBS) delivers on their mission to apply behavioral science to benefit humanity.

I can see lessons I've been teaching throughout his book. Those critical lessons and even phrases are now being passed on to a next generation of readers. Moreover, this leading-edge book is even more reinforcing for me because of the new ground Tim has cultivated by integrating his own profound knowledge--gained through teaching and real-world consulting--into an ingenious presentation of safety-related dysfunctional practices, why they occur, and how to correct them.

"We live, we love, we learn, and we leave a legacy." This profound quotation from Stephen R. Covey, author of *The Seven Habits of Highly Effective People*, has fueled my motivation to keep teaching university students at Virginia Tech. I am empowered by this remarkable teaching/learning legacy. Once I was Tim's mentor and he my student; with this book the roles are reversed. In many ways my former student has become my teacher.

E. Scott Geller, Ph.D.

Alumni Distinguished Professor, Virginia Tech
Senior Partner, Safety Performance Solutions

DYSFUNCTIONAL PRACTICES IS ONE OF THE MOST novel and insightful safety books you'll ever pick up. Tim Ludwig is a subject matter expert in behavioral safety as well as a great storyteller. Many times he makes his points using real-world (or close to it) stories, and we all know storytelling is one of the best forms of communication and teaching.

What's novel about Tim's book is the points he makes. Safety programs forever have been blighted by dysfunctional practices, very often practiced without the knowledge of how damaging they are. As Tim explains, we're all human and we're doing just what comes naturally. In safety, that includes labeling people as "stupid," "plain lazy," and many other stickers we are so quick to stamp on people, really without giving it much thought. This book explains the damage wrought by blaming the victim as well as any safety work I've read. The unintended impact incurred by the common safety "fishing for faults expeditions" is explained thoughtfully in chapter four and should be thought-provoking for any reader. I couldn't agree more with Tim's point that finding fault with individuals is indeed a serious dysfunctional practice learned by too many managers.

Another important point: Tim clears up the misrepresentation that behavior-based safety focuses on bad behavior and the actions of individuals. The book does an excellent job of explaining how behavior is shaped by systems and environments and organizational cultures. You won't come across a better description of what actually constitutes a "system" in all its components and complexity than you will read in chapter nine.

Tim also executes clear and concise, reader-friendly descriptions of how our brains work (neuroscience), how behavioral science's antecedents and consequences work, how safety cultures work, and how best to observe someone at work and break down their actions into definable, operational definitions that everyone will understand and learn from. Of more importance, you're given solutions to break some of these habitual practices and develop best practices for building sustainable safety cultures, engaging the workforce, and getting the most from behavior-based safety programs and safety management systems.

I think what you'll also find novel about this book is simply its language. This is not a textbook. It's down to earth, funny, sardonic, at times hear-warming; full of stories and characters, deadly serious and also a bit irreverent, and easy to read. It has a tone all its own; one that's unique in the large library of safety literature. Enjoy and embrace it.

Dave Johnson
Editor, *Industrial Safety & Hygiene News*

Preface

A MAN FINDS HIMSELF ON THE TOP STEP of a step ladder; a woman removes the guard to her machine; a worker is not wearing her safety glasses in the plant; a roustabout uses the wrong sized clamp instead of retrieving the right tool from the supply truck; a supervisor teaches a new worker to take short cuts; a mechanic climbs on top of the active machine to find the oil leak. Why do these folks do these things? Is it because they are stupid?

One tendency is to blame workers for safety errors and label their personal failings as the cause of the error. Labeling does not solve problems that cause error and, frankly, it may all be an illusion of human perception leading us to false conclusions. Our human tendencies result in interactions that hurt the safety of our workers and the effectiveness of the systems we put in place to protect them.

These tendencies build dysfunctional management practices that create fear associated with your safety programs. I want to teach you a better way to analyze the behaviors of your employees to understand why they were put in a position to take the risk in the first place. Your system may be perfectly designed to promote risks and create safety traps. By analyzing the context of behavior we can discover ways to change your system to optimize safe behavior and reduce injury. This book presents new ideas and methods using stories we can all relate to.

Human behavior is at the crux of your safety program. Physics and chemistry create hazards ready to be released when things go wrong. Human behavior happens right before that release. Therefore, we look at the behavior associated with the resulting injury and blame the person as the root cause. We label the person “stupid” and feel we have solved the problem. We haven’t. Instead, a dysfunctional practice creeps into our safety management system blinding us from finding the true root causes of at-risk behavior.

Labeling, such as calling someone stupid, is a short cut when explaining the behavior of others. As humans, we are really good at fooling ourselves with the short cuts wired in our brains. We can blind ourselves from useful analyses when we use our intuition to explain, rationalize, and make attributions of other’s behavior. Our prior experiences, biases, and expectations take us down an illusionary path that may be quite different from reality. This human wiring shapes all of us in ways that further blind us from seeing the true causes of human performance.

A worker’s response to derogatory labeling is predictable and automatic, even when the labeling is not specifically directed at them. Labeling creates a workplace-wide culture of fear. Our body physically responds to negative labeling and threats of discipline with a visceral alarm that creates a black cloud over safety programs. It is an anxiety response that workers actively avoid. Who wouldn’t? If our goal is to create a safety culture in which workers are engaged with situational awareness, peer coaching, and reporting, we will fail. Our offensive labeling will create avoidance of the very engagement we desperately need from our workers.

We can’t fix people, let’s not be that pompous. But we can change behavior... we know how; there is a science behind it. We want to define behaviors in a way that are as open to unbiased analysis as the elements of physics and chemistry. Behavior is not a static variable of study. It’s not a geologic formation changing over the epoch of time. Behavior is a dynamic variable, reacting with each passing moment along predictable paths, like water in a river, but always ready and able to jump its banks and forge new paths.

We will discover that behavior is neutral, not good or bad, right or wrong. We will learn that for every safe behavior you want from your workers, there are a plethora of competing alternative behaviors that can put them at-risk. What determines this decision is predominantly the work context and your management systems.

With this perspective we can better ask what put the worker in a position to take the risk. We will build an alternative to labeling with dispassionate, actionable and effective analyses to help build the system that helps workers discriminate the best behaviors for the situation.

Easier said than done? Certainly. But can we walk-the-talk? I offer a personal story as a postlude to our book as an example of how hard it can be.

This book is for managers who seek to shape their safety culture to drive out fear and engage their workforce as they drive out risk. I want to help leaders at the top break through their biases and look at safety through a different, more effective lens. Similarly, this book is for the noble safety professional who must build safety management systems to avoid biases and other human tendencies; systems that focus on the controls, PPE, senior leadership involvement, and adequate safety resources that shape and maintain safe behaviors.

Finally, I dedicate this book to the courageous workers who are in the best position to help their sisters and brothers by applying the principles we will discover together. You have been my teachers, your worksites my classroom. You are the everyday heroes deserving of our respect. I wrote this for you.

Tim Ludwig

**PART 1:
DYSFUNCTIONAL PRACTICES**

WARNING



CHAPTER 1: You Can't Fix Stupid

IT'S QUITE EASY TO GIVE OURSELVES LABELS, ISN'T IT?
Let me explain.

I live up in the mountains and I drive very curvy roads to work and back, to go to the grocery store, kids' basketball games, anywhere. I can go an entire trip without even seeing another car. I've gotten pretty good handling these roads. I have to, they are hazardous.

I live a full two hours from a major city. It's where I head when I go to the airport, big concerts, and to vacation. On this occasion I was doing all three and my family was coming with me. We were in two cars; I drove one and my wife the other because I was flying out after the weekend and she was heading back with the kids. She was following me and I gazed frequently in the rear view mirror to assure myself we were together as the city traffic increased. I'm a mountain driver and the multi-lane highways, constant lights, and excessive traffic had me unnerved. Sure enough, I took a wrong turn and found myself in neighborhood with no sign of my wife in the rearview. I lost her. Fortunately, my phone navigation app got me back to the main road. As I turned on the main road, wondering where my wife was, I glanced at the rear view and, to my astonishment and delight, she was right behind me again!

As I stared into the rear view mirror waving at her I blew right through a big red light. I drove right into five lanes feeding the intersection in four directions. It was sheer luck that no one else was in the intersection. You know that moment when you knew you screwed up? I knew I just I screwed up. Just in case I wasn't aware of my error, an SUV coming from my left laid on his horn and came up right up beside me. I looked over at him. He stared at me with an angry face yelling at the closed windows. All I could do was point at my head with a crooked face and mouth "*I'm stupid.*" He seemed to accept that. He nodded, and then he went on. I had interpreted my own behavior with a label, "Stupid," and that simple adjective seemed appropriate. Incidentally, my wife and kids agreed as well.

Labels are Easy

I had stamped myself "stupid." It's quite easy to give ourselves a label, isn't it? We look at our behavior, see the outcome of it, and we give ourselves a label. In fact, labeling is quite popular in modern business where management training often involves some personality test like the *Colors* or the *MBTI (Myers Briggs Type Inventory)* where we learn everyone's label in hopes of better collaboration. We are taught to describe ourselves: "I'm an 'Introvert' which explains my discomfort working in big teams;" or "My co-worker is a 'Judger' which explains why she is so critical." Somehow these labels seem to be the magic elixir that makes business work better. We have the impression that if we just "know" ourselves and others better then our work together will be more collaborative and productive. That somehow through a label we can better anticipate how the boss will react to our request for a budget increase for a safety project or we can better manage the resistance we experience from workers given a new safety process.

But, in the end, labeling doesn't impact our ability to manage the behavior of others (or ourselves for that matter). After the labeling event — where we take a survey, learn our color or type (our label) and discuss our tendencies in a group kumbaya, trust-fall session — everyone goes back to the same work environment they came from. We go back to the same deadlines, confusing instructions, boring re-

petitive tasks, bureaucratic requirements, inferior tools, degrading facilities, and dealing with the same ambiguity that make human interactions complicated. The environment is the context of all we do. It is not one thing, it is a multitude of present realities and artifacts of past events of varying levels of importance that our brain has to navigate and engage with. This dynamic and complex environment triggers our actions and afterward lets us know if our actions made a difference, or just screwed up things more. After labeling, we may feel enlightened, but the environment doesn't change and we end up acting the same way as in the past as the environment dictated. Nothing changes.

But we don't need an intense labeling session to be labelers. We do it all the time as a human tendency. Consider this question: Don't we overuse labels when dealing with the safety of our work crews and managers? For example, if workers can't follow rules and procedures that are clearly written in the manuals and training, and then they get hurt, they're "Stupid," "Noncompliant," or "Lazy" or "_____ (you can fill in the blank — please keep it rated "PG-13"). Shoot, we even label when folks don't get hurt, such as when their work space is disorganized or PPE disheveled, when they have blank eyes during a safety meeting or hide their errors. We label a lot... and it's a dysfunctional practice. Let me explain...

The Stupid Manager

I was invited to go to an automobile parts plant that had a lot of safety issues. Their injury rate was too high and a new general manager was brought in — young guy. He had been there for about a half a year and, from all accounts, he had been doing a really good job of just picking the low-hanging fruit. You know, putting guards on hazardous equipment, upgrading PPE, writing some SOPs, and cleaning up stuff.

I was there to do a safety culture assessment. I had assembled a focus group of line employees and some maintenance folks in a front office board room, seeking to understand why their team's safety culture scored the most negative in the whole corporation on a recent survey. The general manager and safety pro were also in the board room with

us. One of the problems they talked about was they had a lot of aging machinery that would mist and drip a lot of oil. The conversation started quite diplomatic when everyone acknowledged that things had gotten better. It used to be they couldn't even see the clock on the wall because of the oil mist in the air.

The manager had put in filtration systems and some “band aids” on the machines. He had been working hard at it and the employees did say they appreciated his work, although I could tell they definitely still had some unspoken grievances about working conditions. But the manager didn’t reciprocate this diplomacy. In fact, when I got him talking more honestly (I am a psychologist after all) the manager showed his frustration. His hands were animated when he said, *‘I’ve done all I can. The workers just don’t care. I’m spending tens of thousands of dollars fixing equipment and our facilities, but the workers just don’t care. They just don’t get it. They keep doing idiotic things and get hurt. There’s something wrong with them. It’s something in the head.’*

One of the workers, a redhead woman, was sitting at the other end of the table. I remember her vividly; she was stewing and shifting in her seat until she bravely blurted out, **“YOU CALLING US STUPID?”** Not a moment passed as he looked at her and said, *“Stupid is as stupid does.”* I was aghast. My mouth was open. Did he just say that? So I knew something was about to go down. Predictably, the room blew up and their negative safety culture was emerging right in front of me as they argued about blame and labels in the oh-so-typical “we vs. they” entrenchments.

The implication was, if workers can’t follow the rules... policies, manuals, procedures, training... they’re stupid. The manager threw down the label, STUPID, in the board room in front of everybody.

But you know what? *You can’t fix stupid.* That’s why the manager was so frustrated; he couldn’t fix this human problem as easily as he could the machines. He was frustrated because he used a label to describe behavior: “You employees are stupid.”

What can you do about Stupid? Honestly, what can you do? Do you coach the person taking risks? That rarely works because they may try to comply with your logic and requests but find themselves back in the same environment once you leave. Do you fire the “stupid” person? Then you’re going to hire someone just as... stupid. They will end up frustrating you as well because they will be put in the same environment as the exiting person. So you’re left with no solution when you label, except getting more and more upset, pleading with workers, “Don’t be stupid.”

Telling folks “Don’t BE this...” simply does not work. You can’t fix a label; that would be like fixing a person. Instead of asking a person to BE or NOT TO BE something, focus on how you can help them DO what is required to be safe.

I had had enough of the arguing. It was time for me to have confidential discussions with the group of workers, which is part of my process. This gave me an opportunity to kick the manager out. The manager left the room for about an hour-and-a-half. When he came back around lunchtime, he was ashen. He had no color in his face. He was visibly shaken, definitely embarrassed. He had his head down. The redhead noticed and asked, *“What’s going on, sir?”* To his credit, he was honest. He said, *“You know, I decided, I blocked the whole day for this focus group. I didn’t anticipate this extra time, so I decided to go back to my office and get caught up in email. I wanted to keep my eye on the ball and figure out what you folks are talking about when you complain about the plant and your work. You were challenging me to put myself in your shoes so I took that opportunity to go out and work in the plant... to see what you guys are talking about.*

“I’m no laborer and I’m not a machinist, so I don’t want to go out and mess things up by working on or around the machines. So I thought I’d do maintenance.” He joked, *“Even a manager can change light bulbs.”* That’s what he did. There was one area of the plant that was dark, so he got some bulbs and went to work. The manager paused and took a deep breath, avoiding eye contact, and continued, *“Well, before I knew it, I found myself with one foot on the top of the step ladder, on the tip of my toe reaching for the light bulb on the ceiling. My other knee was up on piping trying to get more lift.”* The step ladder

kicked off, he slid on the oily pipe, but somehow grabbed the pipe and stopped the fall. He was then able to climb down. It had just happened before he returned to the board room.

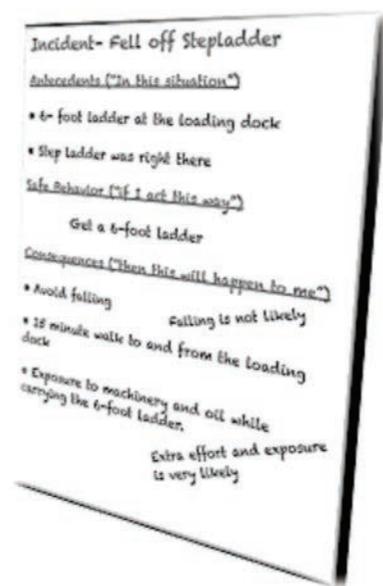
The redhead jumped up, right out of her seat, “*What are you... stupid?*” It was funny, everyone laughed. They were showing him: “*You label us and we label you. What are you going to do now?*” He simply agreed, “*Yeah, I was stupid.*”

A Better Analysis

I took the opportunity to insert some behavioral science, do a smarter analysis, and teach them how to change behavior. Trying to gain control, I pulled the flip chart over and did an analysis of the situation. We first described the behavior that put him at-risk: standing on top of a step ladder. We then asked the manager, “*Why did you do it?*” He predictably replied, “*Well, it was stupid.*”

I asked “*Can we fix stupid?*” The group looked perplexed, they couldn’t fix stupid... after all this was their manager. I finally said, “*Instead of trying to fix your manager here let’s actually focus on something we can fix. So let’s consider, why did he find himself on the top rung of a step ladder? How did he end up in the position to take this risk? Let’s figure this out and we’ll have something to fix.*”

“*The at-risk behavior was ‘standing on top of a step ladder’, why did he do this?*” The manager took the first stab at the question saying that the step ladder he used was in a housekeeping closet about 20 steps away.



“OK, then what was the safer alternative?” The maintenance manager offered his expertise, “For that height, you should use a six-foot ladder.” So that begged the question, “*Why did he choose the step ladder over the six-foot ladder?*”

We noted that the proper ladder, the six-foot ladder, was located at the shipping dock. To get to the shipping dock the manager would have had to walk all the way through the factory, about a seven-minute walk (times two for the round trip). Imagine that. He’d have to walk across the factory and then back through all that hazardous oily machinery carrying a six-foot ladder... just to change that light bulb. Getting the six-foot ladder was costly in terms of effort. You would have to walk for about 15 minutes through the plant and be exposed to more hazards.

We call this a “response cost” and it factors into our decision to do the safe action or take a short cut that may put us at-risk. When we engage in a behavior there are consequences. Some behaviors take extra time that could have been used elsewhere; extra effort that makes us more fatigued; or behaviors may even have social consequences, such as tarnishing our reputation or trust among fellow workers. These all “cost” us and, naturally, we try to minimize costs.

So, simple question: Do you think the extra response cost associated with getting the six-foot ladder encouraged or discouraged using the right tool for the job? You’d only have to walk through the plant a couple times with heavy objects to experience the response cost and begin avoiding similar trips in the future. In technical terms, the behaviors involved in getting the correct ladder are punished due to this response cost. Behavior avoids punishment. So the manager didn’t go get that ladder.

What alternative do you have if he did not retrieve the six-foot ladder? Well, he could not fix the light bulb. Not an option. Another alternative was that he could simply walk right over to the available step ladder in the cleaning closet and use it. This would only take a couple

seconds, it's not that heavy, and he could get the job done quicker.

You'd only have to execute the easier, more convenient option a couple times to begin to choose doing so in the future. The behaviors involved in getting the incorrect ladder are reinforced due to this low response cost. Behavior seeks out reinforcement. So the manager used the step ladder.

We discovered very quickly that the circumstances surrounding the ladder encouraged the risk. Getting the job done quicker and easier was the more powerful consequence. We arrived at the root cause.

It was one of those “easy button” moments. Managers love the easy button. Our manager hit the table, “*We'll procure ladders and put them in the housekeeping closets around the plant. Heck, yeah.*”

We also discovered we did not have to call each other stupid. We did not have to label. Indeed, we can't fix stupid, but we can fix the situation! Our analysis allowed us to arrive at a solution: make the safe behavior quicker and easier to do. We didn't fix stupid, we didn't have to because no one was actually stupid. We proposed to fix the environment and were certain now that this would change behavior. Future workers would be more likely to use the correct ladder.

This solution was made even easier because they had originally created these housekeeping closets because of the oil problem. They needed people to mop the floors when there were oil spills. Housekeeping closets, equipped with a mop and water and a pail, were built all over the plant. All that needed to be done to promote safe ladder use was to procure the six-foot ladders and put them in the closets. This pleased the maintenance guys around the table who had been asking for these for years. Easy button.

We had reached a solution! This cheered up the focus group and they started talking about other things to put in these housekeeping closets so their tools would be in closer proximity to where they need them. But when we started talking about the oily floors, the manager started to

sulk. He stood up and interrupted, “*Those mop and the pails in the housekeeping closets, workers don't use them. I've been trying to clean up the oil problem since I got here and all I'm asking you workers to do is to clean up the floor when you see spills. But you're NOT doing this. I still see oil on the floor all over the plant. YOU PEOPLE ARE LAZY.*”

Another label: You're lazy.

The redhead woman, much calmer now, stopped him, “Sir. Yes we have mops and pails... and yes, we mop. We tried it, sir, but it didn't work. See, after we finish mopping the water the pail is all oily. The next person that uses the mop gets the oily water. After a while, we're just taking the oil mopped up from before and putting it back on the floor.”

The manager was dumbfounded. “*Change the water. If you changed the water, you wouldn't be putting oil back on the floor.*” You could almost hear the manager say “Duh!” under his breath.

The redhead said calmly, “Sir, where's the plumbing? Where's the hose for the clean water?” Guess where it was. It was all the way back at the loading dock where they clean the trucks. To get clean water, a worker would have to push a pail full of oily water through the machinery to the loading dock to change out the water, and then come all the way back with the clean water. More than 15 minutes would be wasted (they were still on the clock); they would be more exposed to hazards while exposing others as well. So they didn't do it.

Again, we didn't need to label. I could have let them argue about who was stupid or who was lazy for the whole day. But that is counterproductive. Instead, we stopped labeling and started a smarter analysis of the environment that put people in the position to take risks. The lesson learned here: instead of labeling, make the proper tools more available at the point where the work is done. Change the environment, and by changing the environment, we change behavior. Workers should no longer have to find themselves in a situation that encourages them to take risks. By the end of our focus group, the manager was talking about how to retrofit plumbing throughout the factory.

Instead of asking a person to BE something, focus on how you can help them DO what is required to be safe. Recognize that EVERYONE wants to be safe and act safe. It is your job to remove the barriers that put them in the position to, knowingly or unknowingly, take that risk. When you get away from the label, you'll be much more likely to see what those barriers are.

Labeling is a human tendency that, as we saw, results in a dysfunctional practice that not only hurts your safety culture but also does little to reduce the risks that get people hurt. Indeed, folks at the auto parts plant were at each other's throats forcefully agreeing that safety was a problem but actively blaming each other instead of working together on a solution. In our next chapter, let's take a hard look at blaming. Let's discover why it occurs, and how it grows into another dysfunctional practice that has a way of getting inserting into our safety management systems, substantially degrading effectiveness.

Instead of asking a person to BE something, focus on how you can help them DO what is required to be safe.

DYSFUNCTIONAL PRACTICE: LABELING

Labeling is a natural human tendency. "Stupid" is a label, no one is stupid. Labeling starts arguments and entrenches people against each other.

You can't fix a label. After labeling, we may feel enlightened, but the environment doesn't change and we end up acting the same way as in the past as the environment dictated. Nothing changes. Labeling hurts our ability to manage the behaviors of others.

We should attempt to change the environment, not the person. Instead of asking a person to BE something, focus on how you can help them DO what is required to be safe.

About the Author

Timothy Ludwig earned his Ph.D. at Virginia Tech researching the benefits of employee-driven behavioral safety programs under E. Scott Geller, and continuing his post-doctoral work in industrial engineering studying applications of W. Edwards Deming to quality and safety improvement. After graduation, Dr. Ludwig consulted with the Department of Energy to study and improve their management systems on the New Production Reactor project, a modern day Manhattan Project to build the next generation of tritium bomb. Thankfully the cold war ended and Dr. Ludwig proceeded to work with the U.S. Navy's acquisition community (NAVSEA, SPAWAR) engaging in strategic planning and process improvement. During his early career, Dr. Ludwig consulted with other government agencies, hospitals, industries, and distribution on quality improvement initiatives.

Tim's father was a preacher as well as a college professor and his mother was an elementary school teacher. So it's easy to understand why he wanted to be a teacher as well, and he has done so for more than 25 years. One of his favorite activities is presenting keynotes, where his teaching skills can deliver meaningful messages to educate and inspire. To this end, Dr. Ludwig has delivered more than 100 keynote speeches internationally. In his "day job" Dr. Ludwig is a Distinguished Graduate Professor at Appalachian State University, teaching in the nationally-recognized Industrial/Organizational Psychology and Human Resources Management Masters program. Dr. Ludwig's teaching has been recognized with the North Carolina University Board of Governors' Excellence Award and has been inducted into his University's Academy of Outstanding Teachers.

Dr. Ludwig founded and directs the Appalachian Safety Summit, bringing internationally-renowned behavioral safety experts to Appalachian State and allowing safety professionals to engage with these individuals in an intimate mountain setting.

Dr. Ludwig loves to write when he needs to get ideas out of his head; he does this through his website, books, magazine articles, blogs, and scholarly articles about his research. His popular website Safety-doc.com is a content-rich resource of safety culture stories, blogs, research, videos, and services. Dr. Ludwig was cited for the second time in Industrial Safety and Hygiene News (ISHN) "50 Leaders for Today and Tomorrow." Dr. Ludwig is the author of dozens of scholarly articles that empirically document the successes of methods to improve safety and quality in industry through behavior-based solutions. His books include *Intervening to Improve the Safety of Occupational Driving*; *Behavioral Systems: Understanding Complexity in Organizations*; *Behavioral Science Approaches to Process Safety: A Response to Industry's Call*; and *Dysfunctional Practices that Kill your Safety Culture*.

Dr. Ludwig served as Editor of the *Journal of Organizational Behavior Management*, the source of the seminal research on behavioral safety published in the 1970s. The *Journal* still often publishes current peer-reviewed behavioral safety research. Dr. Ludwig is the past President of

the Organizational Behavior Management Network that boasts the top behavioral scientists who apply their craft to organizational challenges, including safety. Dr. Ludwig is invited to present his research and behavioral models at numerous scholarly conferences internationally.

Dr. Timothy Ludwig endeavors to use his science and practice to have an impact on the welfare of the human race. Dr. Ludwig serves on the Board of the Cambridge Center for Behavioral Studies whose mission to advance the scientific study of behavior and its humane application to the solution of practical problems, including the prevention and relief of human suffering. Dr. Ludwig serves on the Cambridge Center's Commission for the Accreditation of Behavioral Safety Programs that seeks to recognize and share the best practices of the very top performing behavioral safety programs in the world. Currently there are 23 accredited companies worldwide. This wealth of information can be accessed for free by safety professionals seeking to improve their behavioral safety programs by going to Behavior.org and choosing the Safety topic area. The CCBS Commission also co-hosts the annual national conference Behavioral Safety Now to disseminate best practices, current scientific findings, and practical advice to more than 400 professionals a year.

Dr. Ludwig has more than 30 years of experience in research and practice in behavioral safety. He integrates empirical findings into his safety consulting. Dr. Ludwig has been around the world in his consulting practice helping assess, design, and implement safety and quality improvement programs worldwide. He also has provided his expertise in Behavior Systems Analysis, Strategic Planning, and Quality Improvement to numerous private and government organizations.

Tim lives in the beautiful and ancient mountains of North Carolina with his wife Dr. Lori Ludwig, dog and cat. His three children are beginning their adult lives as they move on to college, bachelors' degrees, and beyond.

