HUMAN NATURE, HUMAN ERROR AND THE SYSTEM

By Larry Wilson

My father took me down to the river. We got out of the car. There were small rapids in this section. He asked me, "which way is the water flowing"? I just looked at him, and then he said, "well… that's all you really need to know about managing sales people". In an instant I got it, but he continued. "Just like the water they find the path of least resistance, so whenever you feel like you're pushing water uphill: stop-think- and do something else. Because all that will happen is you'll get exhausted-and frustrated". Then we got into the car and drove back to the office. In less than a year I wasn't just managing sales people. I was also doing behaviour-based safety training and consulting (which is not a great job when you're in your late 20's and most of the people you are talking to have been doing their jobs longer than you have been alive). However, if we go back to the river, trying to change human nature is about as easy as trying to make the water go uphill. Yes, you can pump it in that direction but it will take a huge amount of effort or energy. If you put rocks in the way, it will just go around them, and if there's enough water it will also go over them. And now, you have rapids. It's not flowing smoothly or nearly as efficiently.

Quite often safety procedures, permits, personal protective equipment and the training required to get the people to follow the system can have the same effect as the rocks in the river. Human nature is to get the job done. It's like the water. And if there are enough rocks in the way you'll have rapids-things won't be flowing smoothly. Designing a system that reduces the resistance will make things flow much better-more smoothly. Unfortunately, many of these systems-like the handrail-are not perfect. Sometimes you need two hands to carry things, especially big things that are heavy. So, there are "practical limitations" in terms of what the system can do. However, if you couldn't hold the handrail, I doubt if anyone would say that the best way to deal with this increased risk would be to run down the stairs to minimize your exposure time.

Early on, when I was teaching supervisors how to make positive safety observations, I was out with a safety representative from the "union". He was none too thrilled about what I was doing with the supervisors. We were out in the large maintenance area under the dam. They were working on the turbine, which was about 6 meters or 20 feet in diameter. There were probably 40-50 people in the area. Some were permanent employees and some were contractors. It was a big work area. There were 3 levels. We were looking around for someone or a couple of people we could observe and then talk to when both saw a young man (about my age) run down the stairs carrying a fairly large cutting wheel with both hands. There would not have been a way for him to hold the handrail as it was too heavy to carry with one hand. I wasn't so concerned about the handrail

but I was concerned about the running. I asked the union guy if he could stop the young man so we could talk to him. "Why were you running down the stairs"? I asked. He looked at me as if I was an idiot and said, "time is money". He did not want to talk about or acknowledge the risk. His supervisor who was in the class didn't see it. He had gone somewhere else to do his observation. We were the only ones who witnessed it. "Couldn't you just walk down the stairs?" I asked.

"Why" was the reply.

"Because you could trip and fall", I said matter of factly.

"I could. But I didn't, did I?" But it wasn't really a question. The union guy didn't say a word.

"Don't you think that's unsafe"?

"No", and then the young man gave me a look to indicate that he'd had enough, and said to Fred, the union guy, "Do I need to talk to him", meaning me. Fred said "no" and so the young man left.

"Why didn't you say anything?" I asked. "He could have been hurt badly". There was a pause. Then Fred looked at me and said, "he wasn't breaking any rules. He's just trying to get the job done. There's no way he could have held the hand rail, and the crew needs the cutting wheel to remove the section of pipe. What was he supposed to do?"

"But that was a lot of risk-what we just saw-if he fell, he could have been injured badly", I said. "Don't you care about that?" Fred pulled out the observation card. "There's nothing on your card about rushing", he said. "I can't wait until you tell these supervisors that they have to tell everybody to slow down. I won't need to say a word. Because I can guarantee you, they won't buy your program". Then he smiled and walked away. Like I said, this wasn't an easy job…

There were just over a thousand employees at this hydro-electric facility. It was a big dam. This was a maintenance turnaround. Everything needed to be done in two weeks. Telling the supervisors that they needed to get everybody to slow down was a sure-fired way, guaranteed, as Fred had said, to make sure I didn't get asked to come back. That was almost 30 years ago. Unfortunately, human nature hasn't changed very much since then. People still want to get the job done. And the same thing is true for fatigue. You can tell people to stop if they're tired but human nature is to push through, and if you're the only one who stops to rest or take a break, you stand out like a sore thumb. Your coworkers aren't likely going to be sympathetic. And chances are, neither is your supervisor. But we all know that rushing and fatigue increase the risk of injury and error. So, we tell people that "No job is so urgent or important that we can't take the time to do it safely". It's even part of some company's safety policy. But typically, it's to negate shortcuts,

like bypassing a step in a procedure: not locking it out, not shoring a trench or not testing for lower explosive limits in a confined space. It's not about rushing or going faster than you normally go, or working when you're tired. It isn't usually extended to frustration either. Although, thankfully I did have a supervisor when I was working as construction worker building residential homes who saw that I was frustrated with the skill saw. I was having trouble making an angled cut on a 2 x 4. He asked if he could see the skill saw. The blade was about 20cm in diameter or 9 inches. I handed it to him. Then he just started wrapping the cord around the handle. When I asked him what he was doing he said, "I'm taking this away from you before you cut your fingers off. I know you don't want to be a body-builder. But if you change your mind, you'll never win anything if you can't lift weights anymore. Roy was an ex-body-builder and he thought I had great calves (which he didn't have), so in retrospect, I was lucky. Not everyone gets a supervisor who understands that frustration can easily make you forget or not think about line of fire. And complacency, perhaps the worst of all, isn't even on the radar screen at most places. If it is, it's usually something trite like, "don't become complacent" or "beware of complacency". Pilots and the military take a different view. They know that complacency kills. They train people about it, but the training is (unfortunately) predominately limited to combat or flying. It's not usually extended to the drive home after the flight or when they have a 48-hour leave so they drive 300 miles to see their girlfriend. And let's face it: if you haven't seen your girlfriend or boyfriend in weeks or months, that's a lot of human nature you're up against.

So, how do you design a system that accommodates human nature, human factors and the critical errors those four states (rushing, frustration, fatigue and complacency) can easily cause? Well, the first step is to try. Putting up big signs that say "Think Safety" or "Safety is a State of Mind" is barely worth doing. Telling people not to rush, don't be frustrated or don't work when you're tired is a lot of human nature to go up against. And telling people not to become complacent is really a waste of time because it's hard-wired into your brain. Your "Reticular Activating System" or RAS is programmed to filter out anything that isn't new, different, interesting, important or pleasurable. It's not something you can stop from happening. None of us ever decided to start driving on auto-pilot. But once your RAS thinks it's "business as usual" it moves you to "screen-saver mode" just like your computer, to save energy or blood glucose. So, you can't stop it from happening. But that doesn't mean you can't do anything about those four states and the risk they pose, either by themselves or in combination.

Perhaps the best place to start is to accept that people may be rushing. They may be frustrated or tired and that eventually everyone becomes complacent if what they are doing is familiar enough. So don't design things to make it worse than it already is. For example: There is a highway from the airport to where I live. The trip is about 2 hours. There is a village about 35 minutes from the city. Although the highway is mostly four lanes (2 north, 2 south) sometimes it's down to just two but the speed limit is the same. It's still 80km/hr. Then when you get to the village it's back to 4 lanes again but the speed limit is 60km/hr. It's more natural to speed up than slow down. So, because too many people are speeding, they put

more police out to enforce it. And that, as you can imagine causes frustration. So that's an obvious place to start. Don't make it worse.

However, that's just a start. You can then move on to redesigning equipment so that it's not frustrating to perform maintenance on it. You can order Personal Protective Equipment (PPE) so that it's not uncomfortable or difficult to wear. You can build a break room or a place where people can take a short 15–20-minute nap if they need to. And although it's not likely to get a lot of support, you can take away production bonuses because it's only human nature to rush in the morning to make sure you made the quota, and then coast in the afternoon. You can decrease the celebrations if the crew beats a production record. And, obviously, you can make deadlines on a turnaround or construction projects go away. However, none of that will be easy unless the senior managers understand Human Factors, Critical Errors and are willing to accept that Human Nature is unlikely to change very much. But it has happened more than once in my career. A couple of years ago I was at a campus of 5 plants with about 3000 employees and around a thousand contractors at any given point in time. They make air conditioners. We had just done a training session on Human Factors that cause over 90% of the serious performance errors that people can make that cause wasted time, wasted money and damaged relationships (either with inside or outside customers). The 3-half-day sessions were conducted over 3 days so everyone had half a day to go out into their work areas to talk to people and look for potential improvements. This was a new course we were piloting; they had already done the course on Human Factors, Critical Errors and Injuries which had gone very well. I was pleased to see from the evaluations (31 people) that they liked this new course even better. As part of the pilot, we also interviewed a cross section of the participants on camera to capture their thought and perceptions. The last person I was interviewing was the head of engineering for all five plants. He was a German fellow, who said, "what you've made me realize is that I need to re-engineer all five plants, just like I did for ergonomics. I couldn't redesign the human spine, so we needed to have adjustable work stations to accommodate people of different heights. And that's just one example. There have been hundreds since then. So now, thanks to you", his eyes narrowed, "I have to redesign everything to accommodate human nature and human factors. Yes", he said, "we can teach people the critical error reduction techniques. We can help them to develop their self-triggering skills and their habits. But in the long run, we also need to improve the system they work in. And we need to accept that fighting human nature is not the way to go". Then he looked at me, smiled and said, "I'm going to need a couple of weeks…".

ABOUT THE AUTHOR

Larry Wilson is a pioneer in the area of Human Factors in safety. He has been a safety consultant for over 25 years and has worked on-site with hundreds of companies worldwide. He is the author of SafeStart, an advanced safety and performance awareness program, successfully implemented in more than 3,500 companies, in over 60 countries, with more than 4 million people trained. He co-authored the book "Inside Out: Rethinking Traditional Safety Management Paradigms" and authored the book "Defenseless Moments: a Different Perspective on Serious Injuries". Larry is the moderator of the SafeConnection expert panels and an active keynote speaker at health and safety conferences around the globe.

SAFESTART®

https://uk.safestart.com | contact@ssi.safestart.com