Are we crazy about Mistakes?

By Joel Levitt

First, a question: What is the difference between a child hitting a pitch and the ball breaking a neighbor's window and the child throwing the ball at the window and breaking it?

One was a mistake and the other was a conscience act. In maintenance the first act, a mistake is a learning experience and requires little or no action from management beyond an investigation of the conditions of the error in an attempt to learn from them. The person will be more careful on their own. The second act requires stiff and swift action from parents (the management).

Second, a story: A massive shutdown in one of the Canadian tar sand projects ran without a lost time safety incident. On the last day an engineer was walking whilst looking at a drawing, tripped on some debris, fell forward and got a compression fracture in the wrist. The engineer did an unsafe act. Again a talking to the engineer is enough discipline since the act itself will provide the training. Again we should study the conditions that created an environment where an absent minded/preoccupied person might trip.

You can rest assured that this is one engineer who will be more careful in the future. But did we (the organization) learn about housekeeping from that event? Did we package the incident so that people could learn, did we look at our housekeeping procedures and processes. And finally did we make the changes we decided would be important?

Perhaps if the debris had not been in the walkway even an preoccupied engineer would not have tripped. That is the key to mistake proof thinking. Is the condition that the mistakes occur in changed, fixed or somehow mitigated?

When a mistake happens, the knee jerk reaction is to find out whom to blame and sack or sanction them. Disciplining or even sacking them makes us feel we have done our duty, rooted out the problem and we have returned the shop floor to a safe condition. Have we? Does this action really protect the rest of the people, the product or the organization? Without learning the ingredients of the brew that caused the mistake another worker will have a lapse of judgment and another mistake will occur.

We live in a blame culture. According to the BNET dictionary, this is a set of attitudes within a business or organization, characterized by an unwillingness to take risks or accept responsibility for mistakes because of a fear of criticism or prosecution. Terrie Anderson, a business coach, goes on to say when

there is a problem in this type of culture, then the team members spend more time working out who to blame (probably before they even attempt to find a solution) than finding a way to solve the problem. The first question asked tends to be 'Who did this?

In a well established blame culture, often no one will ever be found to blame! If a scapegoat is found they are usually a hard working, lower level employee who forgot to notice the cultural impact, and cover their tracks.

Because of this blame culture have we stunted our ability to learn from honest mistakes and lapses of judgment? How does your firm view mistakes? Have good workers been disciplined because of a lapse of judgment?

I recently read a book titled **Managing Maintenance Error** by James Reason and Alan Hobbs (2006) that has me thinking about mistakes and errors. It led me back in time when I was a field service electronics technician.

At the end of one day I was in a hurry because it was a Friday and the traffic would start to get really bad unless I left soon. I was re-assembling a panel that I had worked on replacing the circuit boards and pushed it into place. I didn't notice one of the power line connections came loose. That wire conducted 110V through all the CMOS circuits (this was a long time ago) burning everything out.

I was shattered but not fired. I can tell you I was 10 times more careful after that. After all, don't they tell you that experience comes from making mistakes? If we were in a class I would ask who here in this class ever did something stupid like I did? I would say if you ever carried tools your hand is either up or you are lying!

There was a story about Henry Ford Sr. One of his engineers made a bad design error and cost the company millions of dollars. The engineer loved his job and was miserable. He returned to his desk to clean it out when Ford walked by asking him what he was doing. The engineer answered "Saving you the effort of sacking me" Ford told him, in no uncertain terms, that he wasn't going anywhere. Ford said "I just paid millions educating you, you are not going anywhere!"

The Reason and Hobbs book mentioned earlier says that mistakes are inevitable. They say that most of the exhortations toward zero defects (impossible), zero mistakes (impossible) actually make the situation worse. Unlike common wisdom on this, some of the worst accidents have been made by quality, experienced, dedicated, long term workers having a lapse of judgment.

Alan Hobbs (one of the authors of Managing Maintenance Error) in an overview of maintenance mistakes for the Australia Transportation Safety Bureau goes on to say that while acknowledging that maintenance personnel are responsible for their actions, it must also be recognized that, in many cases, the errors of maintenance technicians are the visible manifestation of **problems with roots deep in the organization**. A careful examination of each error, combined with a preparedness to inquire into why the error occurred, can help to identify underlying organizational problems.

If that is the case then we have a problem; how do we deal with this?

Hobbs goes on to say that effective countermeasures to maintenance error require a systemic approach, not only towards issues at the level of the technician and their work environment, but also to organizational factors such as procedures, task scheduling and training. Some countermeasures to the threat of maintenance error are directed at reducing the probability of error through improvements to training, equipment, the work environment and other conditions.

A second, complementary, approach is to acknowledge that despite the best efforts, it is not possible to eliminate all maintenance errors, and countermeasures must be put in place to make systems more resilient to those residual maintenance errors that are not prevented.

Initial steps to take:

- The first step is to realize that errors occur naturally. Even the best worker will make occasional errors. We have to sort out honest mistakes (that are teaching moments) from intentional mistakes (which may become disciplinary issues).
- We have to investigate the conditions that made the mistake more likely.
    - Look at the business process that requires intense pressure to complete jobs
    - Look at the business process such that there are conflicting communications about the scope of work, priority of work, etc.
    - Look at the business process where jobs are started and abandoned (then restarted a while later), or started and finished by another worker without a formal handover
    - Look at the business process where procedures are non-existent, outdated, ignored or lost.
    - Working conditions such as long hours, bad lighting, uncomfortable conditions (cold or hot)
    - Inadequate maintenance set-up including improvised tools and materials, jury-rigged work platforms, lack of skill in the specific area and no training to back-fill lack of skill
    - Some are worker related (no blame-just recognition of reality) such as unrelated fatigue, sickness, chronic health problems, prescription and over the counter drugs
- Open up the culture to allow mistakes to be told and learned from. Like our hunter gatherer ancestors who told stories when gathered around the campfire, the stories of our personal mistakes and the mistakes we've learned from retold could save the life of someone.
- Open up the culture where the events, conditions and consequences of mistakes can even be discussed to look for what actually happened without blame.
- The second part of Hobbs' prescription is to design our systems more mistake tolerant (a subject for another article to be sure)
- Evaluate how good our organization is at learning from past mistakes and near misses. Be sure old mistakes are studied and the conditions that caused them eliminated or mitigated. At least are they written into simple narratives and put into case studies and are required reading?

Good luck.

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