

Are We Willing to Hear What “Failure” Has To Say?

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Abstract

Root Cause Analysis has the potential of CHANGING people, IF the leader of the investigation knows of this potential. Far from “just another problem-solving exercise,” the root cause analysis should SLOW PEOPLE DOWN to the extent that they can see the truth of the incident under inquiry, **WHATEVER THE TRUTH MIGHT BE**. This paper focuses on two parts of our human nature which are large obstacles to root cause discovery, i.e., our unwillingness to slow down, and our unwillingness to let go of certain basic assumptions about life. **Warning: this paper is designed to challenge the way you think about Root Cause Analysis.**

Introduction

We will never be able to learn what we COULD until we see “failure” for what it is. Failure is NOT what we think it is ...
anonymous

Beyond the surface of any subject lies unfathomable, unexplored depth – depth that usually yields ultimately rewarding truths.

Consider the subject of “grass.” Henry David Thoreau once remarked that “I have traveled around the world in my backyard” because he understood the depth of learning that is possible by studying a mere blade of grass in his lawn. He felt that he could understand much of life by taking the time to observe any of its single elements. There is no need to travel to distant lands, he said. All we need to know is staring us right in the face, if we’d only take time to look.

As another example, consider “chemistry,” with its strong emphasis on “equilibrium” reactions. When one grasps the concept of “equilibrium,” one cannot help but wonder about our own existence. Things appear static to us (the blade of grass), but the principle of equilibrium suggests that all things might actually be in a continual state of flux – with some elements being added and others subtracted, continuously. As humans, we understand that we are continually shedding old cells and generating new ones. We inhale air, and exhale CO₂. We learn (absorb) from our existence, modifying (rejecting) our old understandings with new ones. But it isn’t until “chemical equilibrium” is deliberately PONDERED that a true

paradigm shift can occur – altering the way we see our existence..

There seems no doubt that unfathomable depth lies beneath almost any subject, if one is willing to take the time to ponder. Accepting, for a moment, this depth pertaining to such subjects as “grass” and “chemistry,” is there unfathomable, unexplored depth in the subject of “failure” as well?

Failure is the only phenomena in our existence capable of getting our attention when we are “too busy” doing other things. Nothing else can snatch us away from the grasp of our own objectives, desires, and goals and force us to look at the MOST IMPORTANT facets of life
anonymous

This paper is addressed to the investigators of the world – to employees who are charged with the task of getting to the “root cause,” and to the consultants and vendors trying to help them. Are our efforts actually identifying the root causes of our problems? Are we helping our fellow employees and their management see the truth underlying the causes of things that go wrong? Are we tapping into the “unfathomable depth?” Or has our shallow thinking buried some vitally important issues so deeply that we’ll never be able to surface them?

An Enlightening 5 Days in a Plant

Two years ago (1998), I received a request to provide across-the-board root cause analysis training to the hands-on workforce at a client’s site. I had worked with many hands-on people before, and understood that they were already doing about as much as they could do in pursuit of root cause (in their current roles).

Not that I didn’t see a need for some kind of training experience – I certainly did. But not for the brief, surface exposure that only seems to offend the hands-on folks.

Don’t teach me how to do something I either already do, or that I’ll never be able to do!
...refinery operator (1986)

I had been working with this client for 5 years prior to this request, providing 4-day workshops on the subject of Root Cause Discovery. The purpose of this training was two-fold. First, it was necessary to teach people an investigative discipline to be applied when “significant things went wrong.”

But the more important goal of the sessions was to CHALLENGE the way people think about failure and its causes. We were trying to ingrain a Root Cause Mentality within the participants of the workshops – an awareness of why things go wrong – an insatiable curiosity – a realization of why people do what they do. It takes about 4 days to pry

people out of their “world” so that they can explore “the unfathomable depth” – and then to discuss what they have found during their pondering. The 4-day workshop is not a lecture environment, but an interactive experience designed to stimulate the mind, and to continue stimulating it beyond the timeframe of the workshop.

I was surprised, therefore, when requested to provide shortened training for all the hands-on workforce. “I thought you understood that it takes at least 4 days to begin ingraining a root cause mentality!” The reply: “We do understand. But we can’t wait for all the hands-on folks to go through this 4-day course. Isn’t there something we can do more quickly (and economically) to help the hands-on folks dig deeper?”

Although I saw management’s predicament, I did not know what kind of training would TRULY enable their hands-on workforce to dig deeper. To help answer this question, I was commissioned to do an audit of the hands-on people at this site. I was to determine what they were doing (and how they were thinking) NOW, then suggest what they SHOULD be doing (and thinking) differently. The results of the audit were staggering – one of those life-changing moments for me. In retrospect, I believe that what I experienced is typical across most businesses, industries, and life in general. Most of the anonymous quotes in this paper are from that audit.

The Merry-Go-Round Phenomenon

I am a jogger. More than once, I’ve found myself running in a trance-like state, staring at my feet as they hit the blurred asphalt, one foot after another. It is impossible for me to see the details of the road while in this state.

A few weeks ago, I had the opposite sensation when I was WALKING with my wife and child over that same route. Because I was now WALKING, I could see the detailed texture of the road. In fact, I could see beautiful features of the landscape I never seen before.

Thoreau discovered the same effect, but he took it much further. Because he made a life-style change, he could literally sit next to trees (and other forms of nature) for hours watching the details of life unfold in front of him. He understood the necessity of stopping, sitting, observing, and pondering. It is notable how many people talk about Thoreau with a “longing” in their voice.

Compared to jogging (or sitting next to a tree), industry is going at “warp speed.” Everyone is going so fast, juggling so many initiatives, and trying to please so many people that vitally important details become invisible. The result is a mesmerizing blur.

This should come as no surprise – we’ve been feeling the speed of “progress” for a long time. Consider the comments of

Blaise Pascal (1650), the brilliant mathematician who is called the father of probability and risk analysis:

Men are overwhelmed with business, with the study of languages, and with physical exercise; and they are made to understand that they cannot be happy unless their health, their honor, their fortune and that of their friends be in good condition – they are lead to understand that a single thing wanted will make them unhappy.

Thus they are given cares and business which make them bustle about from the break of day. It is, you will exclaim, a strange way to make them happy. What more could be done to make them miserable? Indeed, what more could be done?

We should only have to relieve them from all these cares; for then they would see themselves: they would reflect on what they are, whence they came and whither they go. And thus we cannot divert them too much from their preoccupations or they would be miserable indeed. This is why, after giving them so much business we advise them, if they have some time for relaxation, to employ it in amusement, in play, and to be ALWAYS OCCUPIED. The alternative is too much for them to take.

Pascal’s comments in 1650 are evidence that our condition has not changed much over the centuries. We would rather do ANYTHING than ponder, deliberate, or wonder about the more elusive issues of life. And yet the elusiveness of these issues should be the reason to pursue them, much as “the mere existence of outer-space” is a reason to pursue it.

Even more, it is the elusive subjects – those which seem to have no answer – that are the most important ones to pursue. Malcomb Muggeridge eloquently says it as follows:

*It is only possible to succeed at second rate pursuits, like becoming a millionaire or a prime minister, winning a war, seducing beautiful women, flying through the stratosphere, or landing on the moon. **First-rate pursuits** – involving as they must **trying to understand what life is about** and trying to convey that understanding – inevitably result in a sense of **failure**. A Napoleon, a Churchill, a Roosevelt can consider themselves to be successful, but never a Socrates, a Pascal, a Blake. **Understanding is forever unattainable**. Therein lies the inevitability of failure in embarking upon its quest, which is non the less the **only one worthy of serious pursuit**.
... Malcomb Muggeridge (1903-1990) British Broadcaster.*

Business has little need, it seems, for those who see value in the pursuit of “elusiveness.” Yet according to Muggeridge business is involved in only “second-rate pursuits.” We should be asking ourselves: do we have any time left for the first-rate pursuits? Even more, do we have the desire for the first-rate pursuit? Pascal, for one, thinks not (on both counts).

Failure – Life’s Built-in Advisor

Has this human tendency to be more attracted to the second-rate pursuit put us on a “merry-go-round?” Are we swirling round and round at ever-increasing speeds, thrilled with the experience, but actually going nowhere? The existence of this merry-go-round “rings true” with most people, especially hands-on folks who experience the brunt of the absurdity.

I’m tired of the foolishness, but also too tired to fight it. So I’ll just come to work and do what I’m told – just waiting for my shift to end
... pump mechanic (1998)

When faced with a severely limited amount of time because of an overwhelming amount of work combined with drastically-reduced staffing, the ONLY way to survive is by addressing the largest problems to their shallowest depth. This is a sad, frustrating, futile, and even deadly position to be in.

We know what we want to do, but we just cannot do maintenance AND root cause failure analysis – it’s impossible!
... mechanical maintenance person (1998)

We are reacting at such a furious pace, that when we finally have time to be proactive, we don’t! We just need time to RELAX!
.. operator (1998)

“Sure Root Cause Failure Analyses have value. But they are far too long and drawn out for the reality we live in. If we took time to get to the real root causes of things, we’d go out of business. Can’t we shorten the process somehow?”
... area manager (1998)

Unfortunately, we are beginning to believe that we CAN shorten the process.

Yes, we CAN shorten the process.
We do NOT need to identify the real root causes of our problems – it’s a waste of time.
It’s okay to be going as fast as we are – in fact, it is a competitive requirement!
From miscellaneous sources (1998)

Out of mere frustration, as well our habitual short-term perspective, we convince ourselves that it is not important to take the time to understand and ponder even the second-rate pursuits! In this scenario, needless to say, first-rate pursuits are being totally IGNORED!

Although this paper attempts to articulate the state of things as they exist today, it should also be read as a warning. I am an investigator, a consultant, and trainer of other investigators, but most importantly an empathetic observer of those caught on the merry-go-round. I feel compelled, therefore, to remind people of what is coming if some changes are not made: we’re heading for disaster.

Without a doubt, the phenomena we call “failure” is one of life’s most significant experiences. As stated in one of the opening quotes:

Failure is the only phenomena in our existence capable of getting our attention when we are “too busy” doing other things. Nothing else can snatch us away from the grasp of our own objectives, desires, and goals and force us to look at the MOST IMPORTANT facets of life
..... anonymous

Failure usually comes in small doses before the large ones come – as when we were children being taught manners. As infants, we were told “no.” If we didn’t listen, the tone of the adult voice became threatening. If we still didn’t listen, we were likely to get a small pat on our bottoms. If we still didn’t listen, the small pat usually turned into an intent to inflict pain.

Industrial failure occurs in the same manner, almost as if it were a person, trying in increasing desperation to tell us something. But in today’s environment, we think we don’t have time to listen to the small voice of failure, i.e.,

...the ONLY way to survive is by addressing the largest problems to their shallowest depth.

Small problems and failures are ignored, supposedly by necessity. Therefore, “failure” tries to “speak” louder, and louder, and louder until it finally becomes sufficiently painful to force us to pay attention. Even then, we do as little as possible, addressing the now-large problem to its shallowest depth. Ponder? Deliberate? Pursue those elusive, most important facets of the failure? Not a chance. Reason? No time.

But since failure has not been sufficiently “heard,” it continues to “raise its voice.” Our decision NOT to pursue the elusive issues at the root of the failure will only result in larger, more consequential incidences in the future. Failure WILL be heard – it WILL be understood. Disaster is lurking in those organizations unwilling to ponder.

Unfortunately, most organizations are not “hearing” failure. Perhaps those within these organizations were “born on the merry-go-round,” and thus would not be able to recognize that anything is wrong. But those of us who are

NOT tied to any particular organization seem to all be saying the same thing. We sense that the INTENT of most people's investigative efforts is not what it could or should be.

Root Cause Analysis should have learning rather than fixing as its goal. Failures should not be approached with the expectation of finding the single "root cause" of the problem, nor is there a "solution" to the problem.

Instead, a root cause analysis should become an OCCASION TO IDENTIFY AND DISCUSS ISSUES, to encourage new insights, and to explore possibilities for change and their consequences

... John Carrol, MIT Sloan School of Management (1996)

More than anyone else, it's up to "lead investigators" to help people explore the unfathomable, unexplored depth at the root of failure. Don't wait for management to tell you to take your time! They have a STAKE in the merry-go-round – they are rewarded for increasing its speed (for doing more and more with less and less)!

"As part of the leadership team, let me tell you that reliability is only one of MANY initiatives we are being FORCED to juggle. And it is not even CLOSE to being the number one initiative. With that kind of emphasis, do you really think I am going to devote much TIME to Root Cause Analysis?"

... Area Manager (1998)

Your most important role when leading people in an investigation is to SLOW THEM DOWN, to help them debate the difficult issues lurking below the surface, IN SPITE OF ANYONE'S OBJECTION. In the end, you will be appreciated and rewarded for your persistence, even by the type of manager who made the above statement.

The Enlightenment, Revisited

Even in those rare cases when "the unfathomable depth" is probed, another barrier exists. Once again, the barrier is our own human nature.

There are certain things we do not want to hear, ideas we don't want to consider, or beliefs we don't want to give-up. It's the whole idea of "status-quo" and "comfort-zones." Since this trait seems a part of human nature, we are all susceptible to it.

Why don't we want to hear, or at least consider new ideas? Is it because we've already evaluated and rejected the idea? Or is it because we know it is true, but don't know how to handle it? In either case, our "unwillingness to hear" is a major barrier to seeing the truth in any particular situation. After all, what we "believe" might be IN ERROR.

Most of us have not considered that at one time (not too long ago), it was unheard-of to question the "status-quo" – only the most rebellious would even think of attempting it. Remember Copernicus (1500), who dared to theorize that the earth and other planets revolved around the sun, and Galileo (1600) who was imprisoned for agreeing! Although these are among the most famous examples, we must realize that the vast majority of people during that era had biases and prejudices far beyond anything we can imagine. They were told what to think (by the "experts"), and most simply agreed!

Even more, the experts themselves were not willing to "give-up" some of their own pre-conceived notions. The dominant "way" of thinking in the Middle Ages (circa 1200) was to explain all observed phenomena based on pre-determined religious convictions (called "scholasticism"). In other words, religion itself was considered the untouchable, immovable truth which all other phenomena was required to support. This is precisely why Copernicus and Galileo got themselves in so much trouble – their findings contradicted one of the "untouchable" religious premises of the day, i.e., that man (and the planet Earth) was the center of the universe.

Do we have these "untouchable premises" today?

Rene Descartes (1620) was the first of many philosophers who suggested to "do away with the prevailing methods of scientific and philosophical analysis and START AFRESH from new foundations." He concluded in his astonishing *Discourse on the Method* that "it is desirable for an individual to SWEEP AWAY COMPLETELY all the opinions he had held up to that time in order to direct his life better than if he had relied on the opinions given to him in his youth, opinions whose truth he had not fully investigated."

Note: Descartes and most of his contemporaries were deeply religious people. It was their profound interest in religion, combined with increasing scientific and cultural discoveries which propelled them to QUESTION their beliefs. In the end, their faith was certainly modified, but manifestly strengthened, because it was based on their own convictions and discoveries rather than on the edicts of others.

In his *Discourse on the Method*, Descartes established four rules of procedure to be used in ANY pursuit of knowledge, i.e., in any investigation. The FIRST of his rules is the most relevant to this discussion: "never to accept anything as true if I do not have evident knowledge of its truth... and to include nothing more in my judgments than what presented itself to my mind so clearly and distinctly that I had no occasion to call it into doubt."

Descartes (along with Francis Bacon) went on to be the father of the "scientific method" we use today. But has the raw intent of Descartes been lost? Are we willing to start afresh / sweep away completely all our preconceived notions

about “the way things should be” when we investigate failure and its causes? Are we willing to ask “are we going too fast,” given the evidence in front of us? How about “progress” – are we willing to at least CONSIDER the fact that it might be an illusion? Or what about the stock market – what if our obsession with it is causing insurmountable problems in our society – are we willing to accept, then act on such a finding?

A Chemical Plant that Refused to “See”

Last year (1999), I had the opportunity to lead a gifted team of experts into an investigation of a chronic problem in a chemical plant. Year after year, the problem was getting worse, and eventually caused the plant to be unexpectedly shut down about 6 times in one year.

As part of the investigation, extensive interviews were conducted. The tail-end of the interview process intentionally asked for frustrations (gripes, complaints) of the interviewee, whether or not they had any effect on the chronic problem. In other words, we were trying to get a “pulse” of the culture of the facility, i.e., the attitudes, politics, and concerns of the work-force. Within 15 minutes of summarizing our interview results, our team understood that it was dealing with a disturbing management issue – this facility was being relentlessly and increasingly “milked.”

We found that the plant had been constructed only 5 years earlier. Construction costs were much higher than anticipated. It also took much longer than anticipated to debug, once built. Factors: the original investment was much higher than anticipated; sales were lost because the plant came on-line so late. Results; management tried to recoup the losses by pushing excessive amounts of products through the plant. At the beginning of our investigation (which spanned 6 months), the plant ran at 110% of design throughput (instantaneous, not average). By the end of the investigation, it had increased to 129%. According to many, they had progressed.

Interviewees, however, were exasperated. The workforce expressed fears of many types. They felt threatened (“*you’re not man enough to push harder*”). They were afraid for their safety (there had been serious incidents). Every time they set a new instantaneous throughput record, they were commended and then encouraged to push further. Overtime was rampant – families did not see each other. People were losing sleep, losing weight, and even losing their spouses – the situation was deteriorating rapidly. The merry-go-round ride was thrilling – going round and round, faster and faster, but spiraling towards disaster.

Our team defined the PHYSICAL CAUSES, and suggested a “fix.” Our physical findings were rapidly embraced. But when we reconvened to address the LATENT CAUSES (frustrations, attitudes, pressures, which CAUSED the physical problems, i.e., the merry-go-round), the team

seemed to have lost its interest. The sponsor of the team even told us that we had ONE day to finish the job – they had already gotten what they wanted out of the investigation.

With only one day remaining, we focused quickly on the largest issue voiced by the interviewees, i.e., that the workforce did not have TIME to do things properly. The response of the team to these interview findings shows the existence of “untouchable premises.”

We must have done something wrong – how can we say we’re going too fast – they’ve been saying that since the beginning of time!

Why stir up the muck – there’s nothing we can do about it anyway.

Our Plant Manager is under a lot of pressure, and our continuing this investigation is not going to help. Let’s let by-gone’s be by-gone’s. Besides, we have so many other problems to address!

A small amount of probing, pondering, and research shows that people have NOT been saying “we’re going too fast” since the beginning of time. It’s only since the Enlightenment – the rationalist, humanitarian, and scientific trend of the 17th and 18th centuries (also called the Age of Reason) which began with Descartes – that humans began complaining about the pace of life, and we’ve been complaining more and more ever since. (Interestingly, the concept of human “progress” is also a product of the Enlightenment.)

To my knowledge, disaster has not struck this chemical plant yet. When it does, I will not be surprised – they refused to listen to what failure was saying.

Are we willing to consider how our pace of life has developed over the centuries? Are we willing to question our predecessors conclusions? Have each of us drawn our own conclusions on “the pace of life,” or have we “bought into” the conclusions of others? Descartes would ask us to MAKE UP OUR OWN MINDS, based on the EVIDENCE.

Note: The above comments on the Enlightenment reveal a strange and notable dichotomy. On one hand, Enlightenment thinking (a shedding of ALL pre-conceived notions, combined with an intense study of evidence) allowed people to break free of the mental molds which constrained their thoughts. From our 20th century perspective, humanity almost certainly has a more realistic understanding of their surroundings because of the Era of the Enlightenment. On the other hand, it is disturbing to discover that human progress, as well as all its attendant anxieties can also be traced to this era. Perhaps, the ideas of the Enlightenment are like the

subject of “risk” – each have opposite flip-sides – each is responsible for both “good things” AND “bad.”

Idol Worship is Alive and Well

Why aren't we willing to listen to the REAL causes of our failures? Are we afraid of what we'll hear? Do we think it'll mean the abandonment of what we enjoy most in life?

The Bible speaks harshly about idols. Perhaps it would be fruitful to consider what an idol is. MUCH more than a mere statue, or other object we might worship, idols can be more deceiving and much more destructive. Consider the remark of Francis Bacon (1561 – 1626), another person active in the Enlightenment era:

“Science can not advance by engrafting new things upon old, but must begin from new foundations.”

Although Bacon's comments reinforced those of Descartes, his subsequent choice of words startled the people of his day – and might do the same for us today. Bacon was insistent that scientific investigations be independent of what he called “idols,” by which he meant philosophical, personal, cultural, or other presuppositions which could undermine the truth behind experimental results.

Francis Bacon couldn't have made a better point. Paraphrasing, he said that “when our ideas, beliefs, customs, and practices are more important than the truth, then we have latched onto an idol. Idols are deadly.”

To enter into an investigation with pre-conceived ideas about why something failed is obviously counter-productive. But to enter into an investigation UNWILLING TO PUT EVERYTHING UP FOR GRABS – all your ideas, suppositions, beliefs, mental models – is deadly. As Bacon inferred, it's akin to having an idol. If anything contributes to the Merry-Go-Round – if anything sustains it, or speeds it up, this is it.

In Summary

*If a man will begin with certainties, he shall end in doubts.
But if he will be content to begin with doubts, he shall end in certainties.*

Francis Bacon (1605)

As an investigator, I have learned to try to live by Bacon's comments. In this respect, I certainly did not enter this profession with the image of a merry-go-round in my head. On the contrary, in my early years I was a firm protagonist in support of the “faster and faster, more and better” mentality.

But 20 years of investigations into the ROOT causes of things that go wrong has all but convinced me that we are on a societal merry-go-round that is close to being (if not already) out of control. Most importantly, everything that goes wrong can be traced to this merry-go-round. Most people seem to agree.

The chemical plant example (a real-life example) helped solidify my growing suspicion of the primary cause of the merry-go-round, i.e., we have latched onto IDEA IDOLS which we will not challenge. We refuse to challenge the concept of “progress,” of our attitudes toward the stock market, the concept of “return on investment,” and the concept of “risk.” We go forward blindly, assuming we're okay with our present understanding of these things – these idea idols. We must be willing to challenge our ideas – ALL of them. They are the root causes of our physical plant failures.

The “5 days in a plant” helped solidify my understanding of what's controlling the speed of the merry-go-round. As human beings, we don't want to slow down. We say we do, but we don't – we cannot stand the silence (Pascal). As a colleague of mine, Brad Baker says, “Our desire to act overpowers our need to understand.” More and more, faster and faster – it truly is thrilling! But are we going anywhere? Our unwillingness to slow down and take notice of things, to ponder the elusive issues of life, is what speeds-up the merry-go-round. The pace of our workplaces is causing problems!

Our understanding of human progress, as well as our increasing complaints about a fast-paced life began with the Era of Enlightenment. My research into this era has astounded me. On one hand, it offends me to think that many of our problems are due to “enlightenment” thinking – if we were truly enlightened, things should be better! Are they? We say we have progressed, but at what cost? All of our time, thought-life, and resources are being devoted to MAINTAINING (and even INCREASING) THE SPEED OF THE MERRY-GO-ROUND. We don't seem to have anything left for “the first-rate pursuits.”

On the other hand, who can argue with the necessity to seek the truth -- to be willing to put everything up for grabs, even our most ingrained beliefs. This is not a suggestion to flippantly toss our most cherished beliefs into the pit. Rather we must be WILLING to let them go IF THEY ARE WRONG! It is an investigative necessity! It is also a necessity of life. More practically, by addressing these elusive issues the more practical ones will automatically be “solved.”

Since this paper was written primarily for investigators, the final word is reserved for them. The ultimate duty of an investigator is to LEAD OTHERS into the unfathomable, unexplored depth – and NOT to simply solve a problem (the problem certainly will be solved, and so much more). The investigator should understand that he/she is on a “first-rate

pursuit,” i.e., trying to understand what life is all about, and trying to convey that understanding.” He will end-up helping his team DWELL in some key issues – he will struggle along with the team until a new understanding emerges. He should not expect this new understanding to result in overnight behavior changes. Think of yourself, and what it takes to get YOU to change your mind about something you held dear to your heart. Change takes time, and it is painful. But if he continues to pursue the root causes of “things that go wrong,” taking advantage of each opportunity to help people see the error in their ways, eventually his efforts will pay off. Certainly, he will feel resistance – human nature is rather difficult to combat. But somehow, for some reason, the persistent investigator on this first-rate pursuit will make a positive difference in people’s lives and, by-the-way, will solve the problem as well.

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