## Week of July 1, 2013 – Imminent Danger and Communication

A book that has received considerable notoriety recently is *Outliers*. The author, Malcolm Gladwell, explores the reasons for personal success; indicating that there are factors at play that are beyond one¢s influence: regardless of one¢s talent and motivation. One aspect that is considered is one¢s cultural upbringing and focuses on the psychological phenomenon, õPower Distance Index (PDI).ö This is a scale that categorizes one¢s upbringing with regard to an individual¢s value and respect for authority. Some cultures have a very high regard for authority while others tend to place a respect for authority with a much lower value. And when people of different PDI¢s interact, serious miscommunications can result. Such is the case between a Columbian Airliner when talking to an Air Traffic Control at Kennedy Airport in New York. The following is an edited excerpt from a section of Gladwell¢s *Outliers*.

Plane crashes rarely happen the way they are portrayed in the movies. Engines do not explode in a fiery bang, the rudder doesn¢t suddenly snap under the force of a takeover, nor does the captain gasp, õDear God,ö as he¢s thrown back in his seat. Like most accidents that involve equipment, a tragedy most likely occurs as a result of minor difficulties and seemingly trivial malfunctions. In a typical crash, the weather is poor ó not necessarily terrible ó but bad enough that the pilot feels a little more stressed than usual. It is not uncommon that the plane is behind schedule, so the pilot is feeling a little hurried. Half of all crashes (52%) involved a pilot that has been awake for over 12 hours, so they are tired and not thinking sharply. Slightly less than all crashes (44%) have two pilots that have never worked with each other and therefore, they are not familiar with each other¢s nuances, such as voice inflexions and physical characteristics.

The typical accident involves a number of consecutive human errors, when combined in a particular sequence, leads to a disaster. It¢s not that the pilot has to negotiate some critical technical maneuver and fails. The kinds of errors that cause plane crashes are invariably errors of teamwork and communication. Take, for example one of the most notable incidents in the aviation community. The crash of the Colombian airliner, Avianca, flight 052, January, 1990. This flight was en route from Medellin, Colombia to New York City¢s Kennedy Airport.

According to the subsequent investigation, some facts were put together to understand contributing causes. Investigators noted that the plane for flight 052 was a Boeing 707. This is an older aircraft and according to all pilots, is very challenging to fly (there is a discussion here about non-hydraulic flight controls versus series of pulleys and pull rods), requiring considerable physical strength to operate. Also the instruments in the cockpit are much smaller than modern aircrafts ó also contributing to increased operation difficulty. The autopilot was not operating and, as investigators explained, the pilot was controlling speed with his right hand while his left was flying the plane all the while visually roaming the instrument panel. He was maxed out as the pilot was functioning on limited rest and was tired, compromising decision-making skills. Now add all these things to the foggy weather conditions and there is a recipe for disaster.

The black box that was recovered in the last hour of the flight, the captain is heard repeatedly asking for Air Traffic Control (ATC) to transmit directions in Spanish (a definite sign of fatigue), while constantly asking for ATC to repeat itself and to speak louder . Because of poor weather conditions,

planes were being asked to circle the Kennedy Airport due to limited landing capabilities. After 40 minutes of circling, Flight 052 was running dangerously low on fuel. While the pilot had the option to divert his landing at Philadelphia (65 miles away), it appears that the pilot was determined to land in NYC (a decision error possibly a result of being mentally fatigued).

Investigators determined that Flight 052 aborted landing attempts four times due to ATC direction. Each aborted attempt meant that more fuel was being used. During the third holding pattern, the pilot ordered his co-pilot (who was responsible for communications with ATC), to let ATC know that he didn't think the plane had enough fuel to reach an alternative airport and that they needed to land without delay.

ATC responded with, "Just stand by…..Cleared to Kennedy Airport."

Professionals in the commercial aircraft industry know that this means that their aircraft was being added to the line of aircraft being directed to land and not to jump to the head of the queue. At no time did the pilot request clarification, nor did they bring up the issue of fuel again for other 38 minutes. Below is the black box recording of the conversation that went on in the cockpit:

Pilot: "The runway, where is it? I don't see it. I don't see it."

They take up the landing gear while the captain tells the co-pilot to ask for another traffic pattern. Ten seconds lapse.

Pilot (seemingly to himself): We don't have fuel…"

Seventeen seconds pass as the pilots give technical directions to each other.

Pilot: "I don't k now what happened to the runway. I didn't see it"

Co-pilot: "I didn't see it."

ATC then responds and tells them to make a left turn.

Pilot: "Tell them we are in an emergency!"

Co-pilot (to ATC): That's right to one-eight-zero on the heading and, ah, we'll try once again. We're running out of fuel."

Pilot: "What did he say?"

Co-pilot: "I already advise (sic) him that we are going to attempt again because now we can't…"

Four seconds pass

Pilot: "Advise him we are in emergency."

Four more seconds pass

Pilot: "Did you tell him?"

Co-pilot: "Yes sir. I already advise him."

The co-pilot now starts going over routine details with ATC. "One-five-zero maintaining two thousand Avianca zero-five-two heavy."

Pilot: "Advise him we don't have fuel."

Co-pilot (talking with ATC): "Climb and maintain three thousand and, ah, we're running out of fuel, sir."

Pilot: "Did you already advise that we don't have fuel?"

Co-pilot: "Yes sir, I already advise him."

Pilot: "Bueno."

A little over a minute passes. ATC communication with Flight 052: "And Avianca zero-five-two heavy, ah, I'm gonna bring you about fifteen miles northeast and then turn you back onto the approach. Is that okay with you and your fuel?"

Co-pilot: "I guess so. Thank you very much."

Understand, the plane is out of fuel and about to crash and the co-pilot responds with, "*I guess so, Thank you very much.*"

At this point a flight engineer cries out, "Flameout on engine number four!"

The pilot begins. "Show me the runway," however; the runway is sixteen miles away.

Thirty-six seconds pass and then ATC calls out, "You have, ah, you have enough fuel to make it to the airport?"

The transcript ends.

Flight 052 crashed into the town of Oyster Bay, Long Island. 73 of the 158 passengers died. There was nothing wrong with the aircraft. The pilots weren't drunk (although physically and mentally fatigued). The plane simply ran out of gas.

While there were many factors that contributed to this disaster, we can see that the co-pilot was intimidated by the authoritative manner of the Kennedy Airport ATC. As such the co-pilot could not bring himself to speak up in a commanding manner to let ATC know that they needed full attention. Such could be the case for us when we see an unsafe condition that needs to be corrected. It is not uncommon for one to hesitate as he/she may think that they are getting nosey in someone else's business.  Therefore, it is unfortunate, but typical for one to look the other way when one sees a potential disaster. We need to assertive, as uncomfortable as it may be, when we see a fellow worker engaged in an activity that can potentially result in someone getting hurt.

**I'm a great believer in luck, and I find the harder I work, the luckier I get**

Thomas Jefferson