

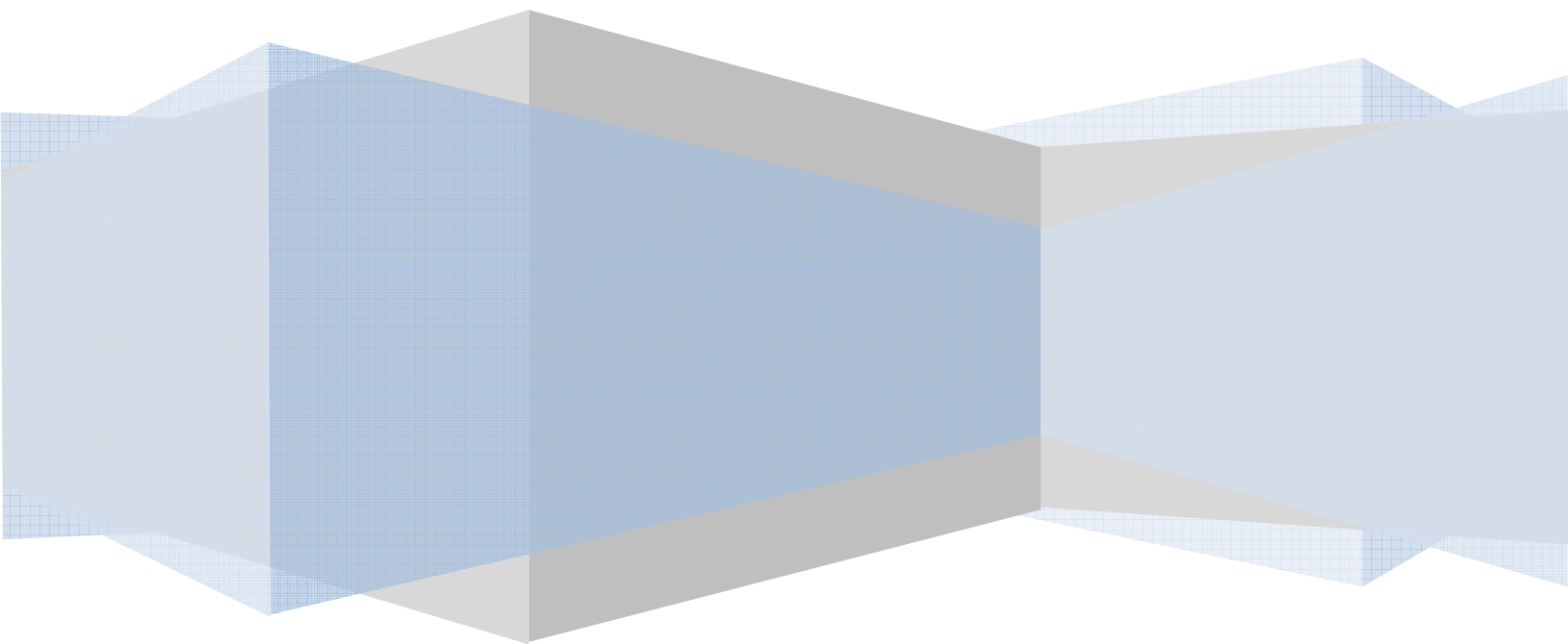
CornerStone Strategies, L.L.C.

# **COLGAN AIR 3407**

## **The Leadership Truth Behind the Accident**

**Was EI a contributing factor?**

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On February 12, 2009 Colgan Airlines Flight #3407 crashed while on approach to Buffalo Niagara International Airport. All 49 people aboard the aircraft and one person on the ground perished in the mishap. Like all accidents of this type the professional investigators continue to painstakingly comb through every element of evidence that led up to the disaster in an attempt to determine the actual cause(s) that were responsible for this unfortunate tragedy. At this writing, no evidence would shed blame on a failure of the aircraft or its components. This has led investigators to focus on the crews' competency, training and health.

On that fateful day, the crew was scheduled to report to work at 13:30. Due to the strong winds at the airport, the first two flights were cancelled. Flight 3407 was initially scheduled to depart at 19:45, and that was the time the aircraft left the gate. The pilots were not given taxi clearance until 20:30, and takeoff clearance until 21:18.

Reports determined the female first officer was ill suffering with a bad cold and had commuted all night to arrive at her duty station on time. There are also reports that the male captain had difficulty in the past passing his check rides. If this is true and there is no indication that the aircraft was at fault, the issue of crew resource management (CRM) is worthy of significant review and analysis.

In my own studies I have spent considerable time researching the mind and how it functions. Recently I have been particularly interested in Emotional Intelligence or EI. People with high EI seem to do very well in business and are considered successful because of their leadership skills. What about those who score low in EI? What kind of people are they and why are they not successful? I was curious to how these crew members would have scored on the emotional intelligence scale and whether that could be a factor in the crash.

A quick explanation of Emotional Intelligence ... "the skill to gauge the emotions of the other person and to create the best possible outcome for all involved". It is the ability to effectively deal with people – their motivations, their issues and their shortcomings – that fosters highly successful teams. It is personal internal and external situational awareness. High EI has been shown to be the primary forecaster of superior performance. It is the most powerful force behind leadership and personal excellence. Leaders with high "people smarts" have outcomes such as successful negotiations, team excellence or, in the cockpit, working effectively with the other pilot and crew members. In executives, 80% of the difference between average performers and high performers is attributed to emotional competence. The results are higher for non-executives.

Human factors is a broad topic encompassing communication, perception, ego, decision making, fatigue and stress. Numerous aircraft accidents have occurred because messages were misunderstood or erroneous assumptions were made. CRM was introduced and implemented to improve the team's interactions with one another. Amazingly, it has an added benefit: it actually works to increase the emotional intelligence of the crew. After all, effective CRM forces participants to become more aware of their behaviors and how others are affected by those perceived behaviors. Simply put - it works and no one will refute the benefits of good communications in the cockpit.

*Human Factors, an integral part of CRM, combines both internal and external situational awareness. It encompasses communication, perception, ego, fatigue and stress.*

Human factors is a fascinating topic and when you tie it with EI, the outcomes of certain scenarios are highly predictable.

EI encompasses numerous key elements; due to space limitations, I will focus my discussion on the top three performance traits that I have researched and experienced: Empathy, Self Confidence/Self Esteem, and Initiative.

### **Empathy:**

Can be defined as the "intellectual identification with or vicarious experiencing of the feelings, thoughts, or attitudes of another", "identification with and understanding of another's situation, feelings, and motives." Empathy combines sympathy for the person and an analysis of the situation. When a person displays empathy, they are seen as concerned and genuine. This can generate more open conversations with others being willing to share their own feelings and beliefs, without fear of retribution or ridicule.

Empathy is one of the primary character traits of influential leaders and star performers. It is with this in mind that I have reviewed and analyzed the Captain's conversations and actions.

We don't know how much interaction the Captain and First Officer had prior to the start of the cockpit voice recording ... but for this article I will assume it would have had very little impact.

There are only two occasions where he casually acknowledged that she was not feeling well: Early in the flight, after what appeared to be a sneeze, he commented "Bless You". She replied "Excuse me, ok." His empathy quickly waned as he immediately continued on his conversations about himself ["it's my little deal and it is what I was taught"] referring to how he handled entries in the logbook.

Later into the flight, she responded to a transmission from Cleveland Control Center.

Cleveland Control Center: Mesaba thirty forty five contact Cleveland Center one two zero point six.

First officer to Cleveland Control Center: one two zero point six Colgan thirty four zero seven.

Cleveland Control Center: nope Colgan thirty four zero seven you stay here. that was for Mesaba.

First Officer to Captain: I'm not doing very good by \* tonight.

Captain: it's alright. (seven seconds later) sorry about that. oh anyway he (Houston Controller) would say Eeeeeeeeastwood information echo.

This was a continuation of his story that was interrupted. The captain continued on for yet another two and a half minutes. No sign of empathy from the captain can be detected which is classic for low EI.

About nine minutes later, the following conversation took place:

Captain: "How's the ears?"

First Officer: "uh they're stuffy"

Captain: "are they poppin?"

First Officer: "yeah"

Captain: "okay that's a good thing."

First Officer: "yeah, I wanta make em pop". "is that ice on our windshield?"

Captain: "got it on my side. you don't have yours?" \* [sound of whistle]

First Officer: "oh yeah oh it's lots of ice."

Captain: "oh yeah that's the most I've seen— most ice I've seen on the leading edges in a long time. in a while anyway I should say."

First Officer: "oh \* [unintelligible word]."

Outside of these two instances, he never asked how she was feeling, or more importantly how capable she felt in regard to her ability to perform her flight duties, even though she sneezed a second time and six minutes later, she mentions her ears. Basic understanding of CRM and crew performance should have tipped off the captain that the first officer was not feeling well that day and her performance could be negatively impacted. A person with higher EI could have easily recognized that, and probably would have been empathic to her condition and her ability to actively participate as a viable crew member.

In another instance:

Cleveland Center controller: "Southwest six fifteen cleared direct to the Buffalo airport."

First Officer: "that us?"

Captain: "nope"

First Officer: "I didn't think so."

Captain: "yeah"

First Officer: "[sound of laughter] I just heard direct Buffalo."

This should have tipped the captain off that the first officer's thinking may not have been totally focused on her first officer duties and she may be not hearing or thinking clearly. He could have discussed this with her – so he personally could assess her performance level.

The captain monopolized nearly all of the conversations – talking 19 minutes out of 40 (from the first of his stories to the ending with a scream: 40 minutes, 31 seconds.) - he was focused on himself, his prior experiences, his current situation and his own future, and appears to be clueless to her deteriorated physical stature. Even when the first officer directly talked about her inexperience in icing conditions, and her own reassurances to herself about feeling more

confident with future flights, he did not comment. What the captain did do was intersperse his icing experiences with appropriate current flying commands. The aircraft was below 10,000' and his story-telling was highly inappropriate.

If he had reasonable EI he could have expressed empathy in two primary areas: how she was feeling [the opportunities stated above] and her insecurities about the weather [see below]. It is the not realizing that her physical state directly affects her mental state is a key element contributing to the failure of this crew to interact as a team. This failure created a dysfunctional platform which ended in disaster.

### **Self-Esteem and Self-Confidence**

We can define these as "a realistic respect for or favorable impression of oneself"; "self-respect and realistic confidence in one's own judgment, ability, power, etc." When someone has average to high self-esteem and self-confidence, they see themselves as competent, successful and valuable. With this confidence, they are more likely to be honest and open about, and vocalize, what they experience internally. They are able to deflect belittling comments and stay true to their values and beliefs.

Pilots often have larger egos and self-confidence than others. I discovered this in my Master's research while I was at Embry-Riddle Aeronautical University (ERAU). There is an entire chapter in the book *The Naked Pilot* devoted to this topic. These character traits also correlate with two of the FAA's defined hazardous attitudes: macho and invulnerability. A captain can have a distorted personal situational awareness – that he [or she] is superior to the other pilot, whether it is because of seniority, age or type of aircraft experience. Macho is defined by the FAA as "I can do it! Always trying to prove that they are better than everyone else". The FAA defines invulnerability as "It won't happen to me! Feels accidents happen to others, but never to them".

*The Captain was impressed with his own abilities, not considering the consequences of the First Officer's sickness symptoms.*

The captain demonstrated both of these hazardous attitudes throughout the flight --- one of his stories ended with "And I just cut her [a flight attendant he had asked a question to] off. Good [unintelligible word]" then he laughed. His next sentence was "...after that day we went to the uh steakhouse...and drank a messload of beer....If you upgrade to the SAAB...". He also avoided directly addressing the dangerous weather conditions either because he was unaware of the severity, or he thought he himself could safely land the plane.

This Captain talked for over seven minutes about a previous trip and her only responses were "yeah", "uh-huh", "ooh" and other non-responses. She said 43 words in these seven minutes, and in only one instance did she say more than three words at a time. Yes it could have been she was not feeling well [his lack of empathy toward her makes him appear to be clueless about her ability to be a good crewmember that night] or she was disengaged from the conversations [lack of personal situational awareness on his part]. Another viewpoint could be that he was feeling insecure about his own flying experience [failing his check ride multiple times] and wanted to impress her or build himself up in his own mind. These comments include: [relative to flying the SAAB]

"That a neat airplane to fly. It's not like this ... I mean it's taking five steps backwards but you're in the left seat ..."

"You know I started this little gig late in life ... it's like a second career for me basically because I was able to take that package from Verizon ... at this point do I go to a major and not be able to be there for very long ...".

Human nature rationalizes to make us feel better about a less-than-ideal situation. This allows us to "save face" with others, and is a real key to the high ego mentality. He justifies staying with Colgan Air in terms of his age, instead of admitting that he may not be able to get on with the majors because of his flying record.

We only know a little about the first officer: where she flew, what she flew, etc. She did talk briefly [about three minutes] about her IOE, lack of experience with icing conditions, tentative plans for her future, Alaska Air, and her quality of life. What we do know in these conversations should have alerted the captain that she was not experienced and was not feeling well. When you combine this with their current weather conditions this certainly should have set off alarms in the captain's mind that he might have his hands full.

We have heard about the captain and the concerns for his prior flying experiences. While on that fateful approach and during one of the rare icing discussions, he mentioned he got hired with only 625 hours, with 250 hours with a Part 121 multi-engine turbine operator. In the next breath, he barely acknowledged the first officer when she spoke of her lack of icing and her northeast weather experience. He immediately turned it back to his minimal experience with icing, in the SAAB, and him being a "Florida man, barely.... Out of Pensacola."

Two minutes later he stuttered "there wasn't - we - never had to make decisions I wouldn't have been able to make now but I'm more comfortable .."; meanwhile he was still unaware of what was rapidly developing around him. Less than three minutes later, there was a sound of a thump and the first officer screamed. The plane crashed.

Several times he derailed the conversation off the logical course and back to himself: after a radio transmission from Cleveland Center clearing them to cross BENE intersection at 11,000', he immediately turned the discussion [monologue, actually] to an air traffic controller in Houston who had "a perfect personality for the being a controller..." That led to his relaying his experiences in other Texas cities he's flown. This four-minute monologue was stopped only because of an altitude alert signal.

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### **Initiative**

"Leading action", "readiness and ability in initiating action", "the power or ability to begin or follow through energetically with a plan or task" is how initiative is best explained.

*Our mind rationalizes to preserve our self-esteem and own our self-value. Our actions directly reflect what our mind is telling us.*

In my review of this accident I discovered several other indications of his lack of initiative and his low self-confidence. In each of these instances, I interpreted his words as being unsure of himself and his own piloting abilities:

- The following conversation took place at slightly above 12,000'
  - First Officer: "oops I think I had two seven six two I think I put half and half. two seven six two yeah. twenty five and then I switched that one. oops."
  - Captain: " it's just like we're in I don't know just just a light haze or type cloud. I don't know just we can see things out in front of us."
  - First Officer: "do you want to go down?"
  - Captain: "huh? ohh. I was thinking about that."
  - First Officer: "might be easier on my ears if we start going down sooner."
  - Captain: "yeah we could do it. that's fine."
 Did she jar him out of non-flying wandering thoughts?
- When talking about TRAVA at approximately 11,000',
  - Captain: "oohh let's see I forget. Do I do the do the first one?" [sic]
  - First Officer: "I did the first one. It doesn't matter you could do either one, there's no hold in there ...."
 Who was directing whom?
- At 6000', in talking about the differences in flying the autopilot between the SAAB and their aircraft, he said "If you don't mind, I'm gonna go ahead and push her down at a thousand feet a minute." As the captain, he is in command of the aircraft as should not have been seeking her approval or consent.

*Did the Captain ask questions, or give a command?  
Depends on your viewpoint .... two very different consequences can result.*

These should have been commands from the captain, not questions to the first officer. He should be taking control of the aircraft, not looking for agreement from her.

Initiative certainly can relate to situational awareness - effectively directing personal energy to achieve goals, taking action or resolving problems when necessary. The captain was severely lacking in this area as it relates to the icing conditions, despite the numerous mentions of the deteriorating weather:

- At one point, the first officer mentioned to the captain "Alrighty and for the rest of that weather uh three miles. It's snowing with some mist". His response was "alright", which could have been a response to her "alrighty", or an acknowledgement of the weather. It was three minutes later that he said to her "It's just like we're in I don't know just just a light haze or type cloud. I don't know just we can see things out in front of us" [sic].
- About twelve minutes later, the first officer announced to the passengers "...weather in Buffalo is uh pretty foggy. Uh snowing a little bit there it's not too terribly cold ...." The captain never commented on the weather conditions.
- Two minutes later
  - First Officer: "is that ice on our windshield?"
  - Captain: "got it on my side.. you don't have yours?", then he whistled.
  - First Officer: "oh yea oh it's lots of ice."

Captain: "that's the most I've seen – most ice I've seen on the leading edges in a long time..."

The first officer talked briefly about her lack of experience with ice ... then the captain laughs. She was, once again, giving him direct prompts telling him of her inexperience and he still never indicates any concern that she may not offer any help to him if conditions worsen.

- Three minutes before the crash,

First Officer: "I've never seen icing conditions. I've never deiced. I've never seen any—I've never experienced any of that. I don't want to have to experience that and make those kinds of calls. you know I'dve freaked out. I'dve have like seen this much ice and thought oh my gosh we were going to crash... but I'm glad to have seen oh— you know now I'm so much more comfortable with it all."

Captain: "yeah uh I I spent the first three months in uh Charleston West Virginia and uh flew—..."

The captain never appears to have control over his situational awareness, especially after the first officer said she was not familiar with flying in icing conditions. He doesn't offer suggestions that would be helpful in concentrating on flying in the unfamiliar weather conditions, even after she mentioned "I've never seen icing conditions. I've never deiced..." Both times he turned the conversation back around to his flying experiences. Her comments literally fell upon deaf ears. He could have asked her questions about flying in icing conditions. This was a prime opportunity to give her real time advice and alert her to various scenarios, etc. Any of these actions would have demonstrated reasonable leadership and initiative. His failures to take decisive action literally lead them into a death trap scenario.

*No situational awareness, no empathy, no forward-looking communications, no self esteem ... a perfect storm is brewing.*

For the captain to have ignored that his first officer had very little experience in icing conditions, and for him to fail to recognize her shortcomings demonstrates a severe deficiency in personal situational awareness. He was presented with one of the best leadership and teachable opportunities ... to work with her to become proficient flying in the adverse conditions they encountered. The captain could have said something like "Neither one of us has flown a lot in these northeast conditions – let's walk through the appropriate steps to take...". This would have kept them both focused on piloting the aircraft, reviewing the procedures, verifying information, checking the gauges and clearing up any uncertainties and away from his irrelevant stories. Not taking the opportunity to mentor her, or taking the appropriate action himself, demonstrates a strong lack of initiative. It is my belief that his complacency in these areas was the leading cause of this accident.

Tragically, this was a perfect storm: deteriorating weather, lack of both pilots' experience flying in icing, flight delays, previous long days and lack of sleep, and most of all the low level of the captain's emotional intelligence. If the captain had more concern for the first officer's physical and mental health and consequential actions, would that have saved lives? Possibly not in itself – he could have instigated a dialogue about her declining condition. Through these discussions, it probably would have become obvious that she was not performing at 100% and

that he needed to be more alert to her actions and inactions. It is his responsibility, as a Captain and as a leader, to insure the safety of the crew and passengers. He did not take the steps necessary to fulfill this responsibility.

Would the captain having more self-confidence / self-esteem made a difference? Possibly ... he may have felt more comfortable with his first officer having 774 hours in the aircraft vs. his 110 hours. He would not have felt compelled to chatter endlessly about his vast flying experiences, seemingly to impress her, or boast about how he single-handedly resolved situations. Low self-confidence causes us to over-act in many ways ... he chose to focus the conversations on himself and away from his shortcomings.

Had the captain taken control of the conversations and been fully engaged in commanding the aircraft in those conditions would the results have been different? Probably.

While CRM may not be the foremost solution to avoiding communication errors in the cockpit, it has proven to enhance both the communications skills and the emotional intelligence of the participants.

Inspecting the transcript, we can look at breaking the error chain from several perspectives:

1. Both pilots were unaware of their own strengths and weaknesses; they had low degrees of internal and external situational awareness which is part of low emotional intelligence. High internal situational awareness is linked to greater performance in assessing several hundred managers across a dozen organizations. Admitting what you are not proficient at is no crime – it is to pretend in a situation as serious as this.
2. If the captain had a higher level of emotional intelligence, how would that have affected the outcome? EI covers two primary areas: awareness of self and awareness of others. Whether deliberate or not, he chose not to reach out to her, to not realize the depth of her affected performance. This was a main factor in the lack of the two pilots working together as a team, and the outcome is the proof.
3. Had the first officer chosen to call off sick (and pay for her hotel room herself), another first officer would have been substituted. Depending on the personality and self-awareness of the substitute first officer, the accident may not have happened. This one link, the replacing the first officer, could have had a tremendous impact on the flight.

The NTSB has not yet released their findings of the exact cause of the crash, so there may still be room for a more reasonable explanation for what actually went wrong. The facts show in their final few moments of the flight the captain failed to demonstrate any situational awareness at all. The airspeed bled down rapidly and he failed to react to it and he further aggravated the problem by not adding any power. As the aircraft began to exhibit controllability issues, he again failed to lower the nose to regain airspeed and actually fought the shaker stick by pulling back on it. He continued to fight the aircraft; his mind reverted to a “fight or flight” reaction. His focus became narrower and he disregarded his professional training. Logical, rational thought did not exist in his mind at this time.



There is no doubt in my mind that his lack of initiative and self-confidence [which are key elements to effective leadership], and his deficiencies in situational awareness, demonstrates that he was a victim of his own low emotional intelligence.

Emotional intelligence is a fascinating topic and one that is certainly worthy of additional study. Imagine how many tragedies like this accident could have been avoided if we better understood EI and how it affects the performance of critical functions like piloting an aircraft.

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NOTE: This analysis, based solely on the NTSB CVR transcript, is from a human behavior / emotional intelligence perspective and is not meant to assign blame. Much like when CRM was first introduced, this illustrates another CRM dimension that, external to aviation, has been shown to improve performance.

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In addition to pursuing her Doctorate in Executive Leadership, Shari is a member of NBAA and has presented seminars at NBAA conferences and CASS. She is also an adjunct faculty member of Mountain State University in their Aviation Department and School of Leadership & Professional Development.

Shari is available to present these and her other research findings at conferences, annual meetings and staff and organizational meetings. Her next white paper focuses on the 1989 UA 232 accident with Captain Al Haynes at the helm. She can be reached at 281.992.4136 or at [www.cornerstonestrategiesllc.com](http://www.cornerstonestrategiesllc.com) .