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Leadership in time of crises: NASA and the Columbia Tragedy
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Abstract

The impact of the loss of the Space Shuttle Columbia and its crew placed NASA into crisis. Just as in the case of the Space Shuttle Challenger tragedy, the future of the manned space program was in peril. There were many lessons learned from the 1986 Challenger accident. This work will look at several studies to gather perspectives from scholars' work that addresses the organizational psychological and emotional recovery from great tragedies. This work suggests that in leading an organization through a sudden crisis, leaders should give attention to three important areas; group survivorship, interpersonal connections and mourning rituals. Zinner (1999) suggests the group survivorship creates a shared sense of mourning. Wheatley (2003) suggests that in time of great loss... "we want to be together". Katz, P., & Bartone, P. (1998) suggest that, "mourning rituals after traumatic events serve to reaffirm the social networks of the survivors, strengthen group bonding, and enhance cultural identities". This work addresses lessons that NASA learned in four areas; 1.) Communication is instant, 2.) There are important survivor groups beyond the Astronaut's families and the NASA workforce, 3.) It's OK to grieve openly in the workplace, and 4.) Open conversations begin the coping process. NASA's leadership did an effective job during the Space

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Shuttle Columbia tragedy in addressing these three areas with the astronauts families, the NASA workforce, the American people and people worldwide.

Leadership in time of crises: NASA and the Columbia Tragedy

On Saturday, February 1, 2003 at 9:00am NASA Johnson Space Flight Center lost communications with the Space Shuttle Columbia, STS-107. (NASA 2003 p. 39) The Columbia crew of seven astronauts had completed a successful 16 day mission and was just minutes from returning home to Kennedy Space Flight Center in Florida when the Columbia broke apart during re-entry. NASA (2003) also reported on the January 28, 1986, Space Shuttle Challenger explosion 73 seconds after take-off from Kennedy Space Center. Those seven crewmembers also perished. One was a high school teacher. (p. 24)

The impact of the loss of the Space Shuttle Columbia and its crew placed NASA into crisis. Just as in the case of the Space Shuttle Challenger tragedy, the future of the manned space program was in peril. The purpose of this work is to look at several studies and gather perspectives from scholars' work that addresses the organizational psychological and emotional recovery from great tragedies. This work will also look at key NASA executives' various leadership styles in coping with crisis situations. It will address the psychological and emotional impact that these tragedies had on NASA as an organization and examine what the NASA Leadership did to help the organization recover emotionally for such a tragic loss.

A review of the literature revealed specific mechanisms that leaders and organizations have used to recover from the psychological impact of sudden tragedy. I selected three coping mechanisms from the literature that leaders have used in leading their organizations through the psychological and emotional recovery after an unforeseen tragedy occurs within that organization. The mechanisms are *group survivorship*, *interpersonal contact* and *mourning rituals*.

Group Survivorship

Wheatley (public speech 2003) suggests that during time of great tragedy or crisis it is imperative that we as human beings turn to one another. Zinner (1999) examined the Challenger disaster from the perspective of *group survivorship* based on a "shared sense of mourning" (p. 35) She suggests four levels of survivorship; "Primary level of survivorship are the family members or intimate friends of the deceased. Secondary survivors have intermediate-level knowledge and interaction with the deceased either through work or community. Tertiary survivors are those who share significant social characteristics with the deceased, e.g. occupational, recreational, geographic, race, gender, or ethnicity. Quaternary or fourth-level survivors are those who share a board

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and general characteristic such a geographic or ethnic identification.” (p. 38) Zinner’s (1999) work suggests that the leadership of the organization must address each level.

In the case of both Challenger and Columbia, the families of the astronauts were the Primary level, the NASA employees’ Secondary level and the American people were the Tertiary level. From a personal perspective, I was in the Tertiary survivor group for both Challenger and Columbia. For Challenger, I felt a connection to one particular Astronaut, Ron McNair, because he was an African American and this resonated with my own personal experience with loss.

In both tragedies the President’s Reagan and Bush spoke directly with all three levels as separate groups. The importance of hearing from the leadership in time of tragedy is a critical component in coping with the emotional trauma. A second mechanism is interpersonal contact.

Interpersonal Contact

Kubey and Peluso (1990) conducted an exploratory study in which they examined what happens emotionally to people after they receive major unanticipated news and how diffusion patterns interact with emotional reaction. Kubey and Peluso (1990) suggest that the relationship between interpersonal communication to psychological coping and to news diffusion has been largely neglected (p. 70).

Shortly after the Challenger exploded they surveyed 105 upper-division college students. 63 of the students were given a questionnaire 27 hours after the accident, and the other 42 students were surveyed 44 hours afterward. Their data suggested, to no surprise, that people who report strong emotional reactions would spend more time talking with others and watching more television. Just as Wheatley (2003 personal comments) suggested, turning to one another is a way of coping with tragedy. She also suggested that it is a critical skill that leaders need to embody and encourage in their organizations. The third coping mechanism is *mourning rituals*.

Mourning Rituals

In the early morning hours of December 12, 1985, a chartered airline carrying 248 soldiers from the 101st Airborne Division crashed shortly after take-off from the International Airport at Gander, Newfoundland killing all aboard. The jet was returning members of the 101st Airborne Division to their home base in Fort Campbell, KY. Katz and Bartone (1998) explored the multiple mourning rituals enacted by their family members, other battalion members, and other soldiers geographically localized at the base. They examined the functions of these rituals in contributing to group and individual recovery. They conducted a naturalistic study in which extensive interview and observational data were collected over a six-month period following the crash. Over 140 soldiers were interviewed, and approximately 300 hours of observation were recorded.

In the case of this air tragedy, victims and the family members of the victims all lived and worked at Ft. Campbell or nearby in Clarksville, TN. The tragedy had impacted not only the family members, but also an entire community. This is very

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similar to NASA's community, in which all of the Astronauts and their families lived in Clear Lake, TX just outside Houston and worked at NASA Johnson Space Flight Center.

Freud, Horowitz, Bowlby, Pollock, Parkes and Raphael as referenced by Katz, P., & Bartone, P. (1998) all agree that the mourning process functions to facilitate the psychological integration of the loss. Katz, P., & Bartone, P. (1998) further suggest that mourning rituals after such disruptive events may serve to reaffirm the social networks of the survivors, strengthen group bonding, and enhance cultural identities. In the case of the Columbia tragedy, I personally experienced a much stronger bond with my colleagues, especially after Meg Wheatley's presentation, in which there was a lot of hugging, holding one another and crying.

In the 101st Airborne tragedy several rituals were employed; all flags were lowered at half-mast, a Presidential Memorial Ceremony was held, a Division Memorial Service, Community Moment of Silence, Special Battalion Memorial Service was held and ten months after the crash, a newly-planted grove of trees was formally dedicated to the memory of the soldiers who died. NASA conducted a very similar mourning ritual for both Challenger and Columbia. Flags were lowered at half-mast, a Presidential Memorial service was held at NASA Johnson Space Flight Center, Houston, TX, a memorial service was held at the National Cathedral in Washington, DC and individual burial services were held at for each of the crew members – some of which were at Arlington National Cemetery in Washington, DC. Subsequently, the Challenger Center was established as an education center to encourage kids to pursue math and science in memory of the Challenger Crew. Scholarships for each of the Columbia crewmember's children have been established. Each year a moment of silence is held for the Challenger Crew at the precise time of the explosion, and one will be added for the Columbia Crew.

Katz, P., & Bartone, P. (1998) suggest that "in many parts of American society mourning rituals are extremely attenuated". This includes overt expressions of emotions and expression of great grief. Anglo-Saxon modes of expression are idealized. They emphasize calm, self-control and no overt expression of emotion. Wheatley (public speech 2003) also suggested that, in the American society, there is an emphasis on getting over grief quickly. However, in the case of the Columbia tragedy, NASA's leadership suspended work for a week to allow employees to as much time as needed to talk with one another and attend memorial services. Many high-ranking NASA executives openly showed their grief in public forums, which, I believe, set the tone and gave permission for all NASA employees to be open with their feelings and emotions.

What NASA Leadership Did

NASA's leadership managed the tragedy of the Columbia in a much smoother way than how the Challenger tragedy was handled. There were many lessons learned from the Challenger tragedy that were well documented resulting in contingency plans being developed and put into place prior to the Columbia accident. NASA struggled with handling the media barrage after the Challenger accident. After the loss of Columbia, the

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agency was much better prepared to address the media, political pundits, employees, the public and, most importantly, the families of the crewmembers.

Organizations and leaders can prepare for crisis through training, which enables them to make quick decisions and measured responses to crisis situations. However, some may argue that the character, values and ethics that the leaders embody are primary determinants to how they lead during times of crises. In the past few years there have been several examples of leadership in time of crisis; Oklahoma City Bombing, Columbine High School, 9/11, and the Sniper Shootings. NASA clearly had the experience of Challenger –to get it right—if faced with another shuttle disaster.

NASA Administrator, Sean O’Keefe (public speech 2003) remarked in a press release about the Columbia/STS-107; “They dedicated their lives to pushing scientific challenges for all of us here on Earth. They dedicated themselves to that objective and did it with a happy heart, willingly and with great enthusiasm.” Administrator O’Keefe (2003) further commented; “We trust the prayers of the Nation will be with them and with their families. A more courageous group of people you could not have hoped to know- an extraordinary group of astronauts who gave their lives-and the families of these crewmembers. They knew exactly the risks. And never, ever did we want to see a circumstance in which this could happen.”

Al Diaz, Center Director for NASA Goddard Space Flight Center, addressed the employees two days later at a colloquia seminar that was featuring Margaret Wheatley. This event was previously scheduled. It was serendipitous that it came just two days after the Columbia tragedy and that Wheatley would be speaking from her book, “Turning to One Another”. Diaz opened the seminar with his thoughts about the tragedy. He shared with the audience his personal experience upon learning of the Columbia tragedy. Diaz was listening to the landing at home on NASA Select TV that Saturday morning. When he heard the announcement of the loss of communications, he thought that one of NASA Goddard’s communication satellites had dropped offline temporarily. However, when he heard the flight controller at JSC instruct the ground controllers to go to their contingency procedures, he began to sweat.

Diaz reminded the audience of the importance of Vision, Passion and Courage around the work that NASA does. He talked about the NASA vision:

Protecting life here; Extending to there; and Finding life beyond

Diaz (public speech 2003) proposed the question: “How do we measure our personal life, not necessarily in longevity but in quality? For NASA’s employees we are not here because of the pay, but because of the passion for pursuing science. It’s the passion that makes us keep doing what we do... The astronauts of Columbia demonstrated great courage by recognizing the risks but acting anyway. The employees of NASA Goddard demonstrate that everyday by taking the unpopular position and defending it in the face of opposition.”

Diaz pointed out that in the couple of days following the Columbia tragedy; there have been numerous conversations about what NASA does and why they do it. When people asked Diaz what they could do in the face of this tragedy, he just simply replied...

“get back to work. However, we need to take some time to grieve and time to take care of each other.” (Diaz 2003)

After Diaz spoke, Wheatley was introduced to lead a conversation with the NASA Goddard employees about the Columbia tragedy. She used her most recent book “Turning to One Another” as the foundation for her talk. Wheatley shared a poem about Columbia that she had written in September 1990.

To sit a top a rocket in the dead of night and look darkward

To feel the balance shift beneath you to feel the earth sway and all that connects you let go to vibrations so intense you reject all ties,
cry for release that explodes the night with light so bright it causes the soul to lift skyward to be a star.

I'll never be an astronaut, but I have felt the shake of soul, the pull of earth the siren song of sky, I have sat in the dead of night and looked darkward waiting for the light, waiting for the light to lift me skyward to be the stars. Meg Wheatley, 1990

According to Wheatley (2003), one thing we know about human beings is that during a time of loss and great tragedy, we want to be together. They want to seek each other out and have a conversation, fulfilling a need to feel connected.

American culture makes it difficult to listen to ones grief and loss. Wheatley's work in South Africa during post-Apartheid, known as the *truth and reconciliation* process, led her to three fundamental findings.

1. She found that what people really need is to be listened to. In American culture, we tend to focus on getting quickly over grief. The belief that healing should occur instantly. In other cultures grief becomes part of the human experience, and that you can hold the grief and still live. There is the Buddhist practice of “flashing”, where a person imagines that in any one moment there are millions of people experiencing the same emotion at exactly the same time. So we accept the grief as apart of the human experience and that loss is a fact of life. Einstein talks about our optical delusion that we are autonomous beings in a world by ourselves, that we are not connected to one another. Meg Wheatley suggests that we must expand our feelings of loss and tragedy. We must go into the emotion and feelings rather than running from it.
2. People only want to be listened to; they don't want to be fixed. When we listen to someone in their experience you actually honor them. We need to just listen and not give in to the tendency to say just the right thing. The loss of the Columbia crew has opened our hearts to connect to other human beings. If we can just be present for people.
3. You can actually cause people to change, just by listening to them. People can find their own healing.

It's better to learn then to be confronted with loss. According to Wheatley, what really disturbs her is that our work has gotten so frenetic and fast paced, the things that

are evaporating from our lives—like being together in organizations are the things that make us human. We don't have time to think together; thinking together is what facilitates innovation and creativity. In the business world we've lost the idea of thinking together, it's really about speeding up to get things done.

The second victim in addition to thinking together is spending time together. The real learning from the Columbia tragedy is that when there is a great loss it brings people together September 11th being another example. If we proceed with business as usual, then the gift of the Columbia loss would have been missed. Diaz illustrated that the tragedy has brought us together to think about our mission and why we do what we do. Vision, passion and courage are the characteristics that we need to have meaningful conversations.

The poet Gary Schneider wrote:

The rising hills, the slopes of statistics lie before us.

The steep climb of everything going up, up as we all go down

In the next century or the one beyond that they say there are valleys and pastures;

We can meet there in peace if we make it.

To climb these coming crests, one word to you, to you and your children, stay together, learn the flowers, go light.”

On October 15, 2003 I conducted a short 15-minute interview with William Readdy, NASA Associate Administrator for Manned Space Flight. William “Bill” Readdy is a former astronaut and is responsible for all of NASA's manned space flight missions that comprise mainly the Space Shuttle Program and the International Space Station. I posed three general questions to Readdy that provided him a framework for the information that I was seeking. The questions that I posed were:

- 1.) How were you prepared to deal with the human and emotional aspects of a shuttle catastrophe prior to the Columbia tragedy?
- 2.) What was your experience in helping to lead NASA through the crisis particularly the grieving process?
- 3.) You were not at NASA during the Challenger tragedy but several senior NASA leaders who were are still around, how did you benefit from their experience in handling the aftermath of Columbia?

Readdy provided the following brief remarks in response to the questions. (Readdy personal communication 2003) “One of the key elements that we know today is that communication is instant and that we have to take advantage of that in dealing with the NASA workforce and the general public.”

“We had an immediate obligation to be with the families of the Columbia Astronaut Crew, our philosophy was that the Columbia families come first. Then we had to address

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the NASA workforce (The NASA Family), the American people because it is America's Space Program and finally the rest of the World because of the international connection of our space program." We had to have a clear simple message for everyone, which O'Keefe articulated in his first public remarks; (O'Keefe public speech 2003) "we will find out what happen, fix it and return to flight".

In response to what lessons were learned from the Challenger accident, Readdy stated that the leadership took a "no comment" posture when dealing with the public for weeks after Challenger. But with Columbia the leadership philosophy was "to tell what we know as soon as we know it."

In response to the first question of preparation, Readdy stated that his training as a pilot and astronaut specifically focused on what to do when things go wrong. In the manned space flight program we create Contingency Plans, and when O'Keefe took over leadership of NASA, he made sure that we had an updated contingency plan for the Space Shuttle Program which was completed ironically shortly before the Columbia Accident. One of the key aspects of the Contingency Plan is that it identified the members of the Accident Investigation Board by name. Bill attributed this to the leadership of O'Keefe who after the Columbia Accident asked the question, "What if we have a Space Station Mishap?" "As result a Contingency Plan was developed for Space Station, and O'Keefe went as far as having it reviewed by members of the Nuclear Safety Commission who provided valuable feedback." This represented a culture shift within the leadership of NASA, because traditionally NASA did not seek advice from outside agencies on planning or implementation of its mission.

Readdy's philosophy that he adapted from the US Marine Corps is, "Mission, Man, Me"

On July 12, 2003 Readdy wrote an impassioned letter to his Return to Flight (RTF) Team expressing his pain and struggles, but also supporting and acknowledging the efforts of the team. Readdy gave them words of encouragement and also prepared them for the Columbia Accident Investigation Board (CAIB) Report, which had come out a month after the letter was written in August 2003. Readdy cited several inspirational pieces different writers such as: William Shedd, Helen Keller, and John F. Kennedy. The most profound was from an anonymous kindergarten teacher, who said, "Keep your heads down and keep coloring".

Conclusion

The three coping mechanisms that I examined in relationship with NASA Columbia and Challenger tragedies are not exhaustive. Also, there are other groups of individuals impacted that I did not discuss but are certainly impacted, e.g. the disaster workers who were responsible for recovery the debris from Challenger and Columbia and more importantly the remains of the shuttle crewmembers. Duckworth (1991) did work in this area related to the preparation of disaster staff for working in disaster situations, supporting them at the scene and providing follow-up psychological assistance in the

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days and weeks after the disaster. In the case of Columbia, thousands of people were involved because the debris field spread across the entire Southwestern United States. Many government and civil agencies were involved as well as the general public in helping to recover the remains and debris. Duckworth's work suggests that, as minimum, organizational leaders in a time of crises and trauma must focus on the people impacted at all levels. They should allow for employees to cope through the various mechanisms of group survivorship, interpersonal conversations, mourning rituals and attend to the needs of the disaster workers as well. If these measures are not addressed it would greatly extend the recovery time for the organization, repercussions could be experienced for months, or even years.

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computer engineer at the Army Materiel Command Headquarters. In 1991, Howard moved to NASA Headquarters working agency wide IT programs. In 1996, he came to Goddard to support the NPPOES Program. In 1998, Howard was selected as the Associate Branch Head for the Systems Integration and Engineering Branch responsible for supervising the Mission Directors. Howard has always had a passion for cultural change and coaching individuals in developing their careers. The ALP offers him the opportunity to pursue his passion in helping others to achieve their career goals.

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