

Leadership Lessons from Outer Space: Bringing the Overview Effect Down to Earth

By David Norris and Frank White

Abstract

This paper explores the effect of transferring insights from the Overview Effect to a terrestrial context. This involves a paradigm shift in which we realize that while we draw distinctions to make sense of our world, such as up/down and subject/object, these distinctions do not exist in reality independently of us. Thus, we can withdraw the distinctions and return to a more holistic perspective. When observing humanity from space, one sees divisions derived from distinctions, which are arbitrary and even counter-productive. The message that the astronauts brought back from space is that not only can each of us look at and think about the whole, but each of us also can look and think from the whole. This presents us with a new horizon of possibility to explore – the possibility of creating context for human organization on Earth. Leaders of the ancient world who went to Delphi to consult the oracle were confronted by the following words inscribed on the walls of the Temple of Apollo: “Know Thyself.” This piece of advice, also inscribed in the stars, is just as valid for leaders today.

Keywords: Overview Effect, wholeness, leadership, creativity, self-knowledge.

Introduction

Ever since human beings have been able to go into orbit or achieve escape velocity and break free of the gravitational pull of the Earth, returning astronauts have spoken of new and often extraordinary experiences.¹ Frank White interviewed a number of them and then wrote a book in 1987 entitled *The Overview Effect: Space Exploration and Human Evolution*.² Simply put, the Overview Effect is a cognitive shift in which one sees the Earth from space and in space as a planet moving through a star-filled universe. Seeing the Earth **from space** means seeing it as a whole system. Seeing the Earth **in space** means seeing the Earth in the context of the solar system and the universe, which is seeing it as part of an even larger whole. This was a shift in the astronauts’ perception not only of the Earth, but also of humanity and of themselves, which some of them even reported to be life-changing.

Such a cognitive shift is obviously not trivial; it is a fundamental paradigm change leading to an alteration in the nature of perception itself from a seeing of parts to an awareness of wholes. In this article, we present four lessons for leaders derived from the Overview Effect, which seem to us necessary (though perhaps not sufficient) to escape the gravitational pull of the currently prevailing organizational paradigm. The critical question, of course, is: Can we actually bring the Overview Effect down to Earth? Must we send every leader and his or her executive team into orbit, or is it possible to achieve the same “breaking-free” experience without leaving the planet?

¹ This article originally grew out of a series of conversations among the authors and Charles E. Smith.

² (Reston, VA: American Institute of Aeronautics and Astronautics).

Lesson #1: Leadership is Framing the Circumstances so that Dissonance is Harnessed to Action

In *The Way of the Explorer*, Apollo 14 astronaut Edgar Mitchell, the sixth person to walk on the moon, wrote about a jarring dissonance that he felt between the peaceful view of the Earth hanging in the tranquil blackness of space and the harsh reality he knew existed on the surface of the planet:

There was the initial awareness that the planet in the window harbored much strife and discord beneath the blue and white atmosphere, a peaceful and inviting appearance.³

Former NASA astronaut Ron Garan, who spent several months on the International Space Station, also mentions the same kind of disconcerting experience:

I was struck by a sobering contradiction. On the one hand I saw this incredibly beautiful, fragile oasis, the Earth. On the other, I was faced with the unfortunate realities of life on our planet for many of its inhabitants – those that don't have enough food to eat, clean water to drink; those that face poverty and conflicts.⁴

Such an undeniable sense of incongruence seems to be a necessary element for breaking free from the conventional Earth perspective. From space it is the discrepancy between the majestic and serene beauty of the whole blue planet and the knowledge of the wretched living conditions of many of its citizens; or the obvious unity of a single undivided world and the knowledge of the many destructive wars being fought over arbitrary lines on a map. On Earth, this dissonance might be expressed as the discrepancy between a vision for an organization to which one is committed and the reality with which one is confronted. In any event, for real change to occur, the incongruity must be experienced in a powerful, visceral way and not merely as an intellectual preference. Leaders must be willing to make the gap between the corporate vision and the corporate reality so present in the organizational culture that it literally hurts when letting it in fully. Without this kind of cognitive dissonance leading to an emotional impact, change initiatives are usually doomed to half-hearted measures. However, such pain alone will be insufficient. While the dissonance can provide the necessary push to action, also needed is the pull of the possibility inherent in the vision, which must be broadly and continuously communicated throughout the organization by its leaders.

It's almost certainly not a coincidence that after retiring from NASA, many of the astronauts established organizations and foundations committed to the betterment of humanity. For example, Edgar Mitchell founded the Institute of Noetic Sciences, which is dedicated to the study of consciousness. Ron Garan has written a book called *The Orbital Perspective*, which he describes as the call to action that results from experiencing the Overview Effect, and he is engaged in a variety of humanitarian

³ Edgar Mitchell, *The Way of the Explorer* (Franklin Lakes, NJ: Career Press, 2008), 74.

⁴ Ron Garan, www.fragileoasis.org.

initiatives on the Earth. And Rusty Schweickart, who flew on the Apollo 9 mission in 1969, founded the Association of Space Explorers, which among other things is committed to providing its members with “opportunities to communicate their unique perspective of Earth to help stimulate humanity’s sense of responsibility for our home planet.”⁵

Lesson #2: Leadership is a Creative Act

Whether as a symphony orchestra, a basketball team, or a military unit, individuals who come together with the intention of producing a result do so because they think that the group as a whole is capable of achieving more than the sum of the efforts of the individuals. We like to say: “The whole is greater than the sum of its parts.” But what exactly is the difference between a whole and the sum of its parts? What exactly is it that is greater?

This is, of course, not a new question, but a possible new answer to it may be embedded in the experience of the Overview Effect. The astronauts could see through the window of their spacecraft that there are no borders or boundaries on our planet except those created by human beings. They perceived the Earth as an undivided whole populated by an equally undivided humanity. As an idea, this certainly was not novel. However, what was stunningly different was that they accessed this notion as a live experience and not merely as an attractive concept. Even beyond this, some of the astronauts apparently experienced the Earth itself as integrally connected with the whole of the universe. Freed from their earthbound point of view, they saw the universe as a single seamless phenomenon, with its borders nowhere and its center everywhere. And then they returned home to bring the message that we humans are capable of perceiving and thinking *from* the whole and not just *about* the whole. As shuttle astronaut Jeff Hoffman put it:

You do, from that perspective, see the Earth as a planet. You see the sun as a star.... You are seeing it from a cosmic perspective.⁶

And seeing from that cosmic perspective makes it palpably obvious that the boxes we live and work in on Earth only exist because we ourselves draw the lines that make them appear real. This is equally true of organizations. A leader not only understands this, but can live it by experiencing his or her organization as an emergent phenomenon and not just as an historical artifact. We human beings create distinctions to make sense of our world, forget that we made them, and then these distinctions appear to exist in reality independently of us. Once A and B have been distinguished and appear to be separate from one another, we see this separateness as if it were an objective fact unrelated to our perception. However, if we can recall that we made the distinction and that A and B only appear to be separate, then we can withdraw the distinction and return to wholeness, from which it is possible to draw other distinctions.

⁵ www.space-explorers.org.

⁶ Jeff Hoffman, in “Overview”, a film by Planetary Collective, www.vimeo.com/55073825.

In some countries (for example, Germany and Japan) labor and management are not perceived as so divided from one another as they are elsewhere. In Germany they cooperate even to the extent that the workers are represented on the Board of Directors. Works Councils were already operating there in the mid-nineteenth century and employee participation in management played a crucial role in the post-World War II German economic miracle, particularly in the coal and steel industries. Though this model may not be appropriate for every country, the point is that by re-drawing the lines in such a way, it became easier for management and labor to experience that they shared a destiny as well as a factory. Not only did it lead to far fewer strikes and other workplace difficulties but it also increased the organization's capacity for innovation. Each year, for example, the management of Toyota Motor Corporation receives tens of thousands of suggestions from workers for enhancing productivity. Most of these suggestions are for small, incremental improvements though occasionally one will lead to a major breakthrough. The workforce understands itself as part of a whole and leadership is revealed to be less about the charisma of heroic individuals and more about the creative act of building a team by erasing existing lines and drawing new ones. It has often been said that the main job of a CEO is to shape and nurture the organizational culture. Nothing does more to support the vibrancy of a culture than to perceive it and interact with it as a unified emergent whole and not merely as the sum of already existing parts.

CEOs may believe they are taking responsibility for the whole of their organizations, but actually they are often at best being responsible for the sum of the parts of their organizations. By exercising good judgment and seeking appropriate compromise, they strive for a healthy balance among these parts. This is, of course, important and useful, but it is not wholeness. Nor is wholeness to be found in a set of overarching company goals, which is usually just a summing up of the projected contributions from each department or division. The difference between the whole of an organization and the sum of its parts is the presence of a larger context, which among other things allows the various parts to be intelligible to one another by virtue of each part's relationship to the whole. A context is a set of distinctions that calls forth a particular reality. Leadership continuously assesses whether the existing organizational context and its constitutive distinctions are still relevant, and when they are not, is competent enough to recognize this and to create a new more appropriate context.

Lesson #3: Leadership Provides Orientation

When they were interviewed regarding the most striking aspects of their experience in space, many of the astronauts spoke of "zero-g," which means being in a zero gravity environment or weightlessness. The effects of weightlessness range from delightful (as in being able to float effortlessly) to strange (as in the loss of spatial orientation). One part of the middle ear called the otolith helps us keep our equilibrium while on Earth. In zero-g, however, this organ ceases to function properly and no longer provides the body with the necessary adjustments to muscles and vision, which normally give us a sense of stability. Spatial disorientation occurs, because the brain cannot determine which way is up and which is down. On Earth, which the astronauts define as a "one-g" environment, up and down are simply given and provide us with the coordinates for navigating on the surface. It is the presence of gravity pulling our bodies toward the

surface that gives the illusion of an above and below. In orbit, however, as astronaut John Herrington put it:

Unless you are looking at a large section of the space station, or you are looking at the Earth, your body can't tell what is up or down, because it doesn't have that sensation of gravity anymore.⁷

Like zero-g environments, rapidly changing business environments can be exhilarating or disorienting, because change challenges the existing reality. It is always dangerous, of course, to push an analogy too far, but as part of exploring the possibility of bringing the Overview Effect down to Earth, we do believe it is appropriate to ask: What would be the effect on people of living and working in a "zero-g organizational culture"? For example, on Earth our orientation in social space is strongly determined by our sense of who is up and who is down. Status permeates most human interactions, from who has got more money at the country club to who can lift more weight at the fitness club. Though much has been written about eliminating hierarchy in organizations and there even have been many efforts to do so (e.g., at Pixar Studios and W. L. Gore), by and large our human organizations remain fundamentally hierarchical. We make a distinction between up and down and then, forgetting we did so, it appears to have an independent existence in reality. In fact, we may even become disoriented if that distinction suddenly disappears.

Different national cultures have different ways of acknowledging the hierarchy. In the United States, where everyone is called by first name, status is somewhat masked, but it is still displayed by the size of your office, the height of your chair, and the proximity of your parking space to the front door. In other countries, it is to be found in the language you use to address superiors or in knowing when a meeting is over. But regardless of the form it takes, the sense of up and down permeates most human interactions.

When observing humanity while on the Earth, one sees divisions on the vertical plane (status) just as clearly as on the horizontal plane (national borders or departmental boundaries). In space, however, both of these divisions seem arbitrary and even counter-productive. On the International Space Station, for example, while the astronauts may have different titles, these differences confer accountability more than status. And though they come from 15 different countries, the astronauts work out any interpersonal difficulties among themselves, simply because they know they have to do so in order to survive in that environment. From these remarks, it might appear that we are opposed to hierarchy and would seek to eliminate it in organizations. But that is not the case. Hierarchy can be an efficient way of structuring accountabilities and the lines of communication for fulfilling them and so is often useful and sometimes even essential. The problem, as stated above, comes only when the distinction is misperceived to be a separation; when up and down appear to exist independently of the observer, then accountability is easily confused with status and hierarchy is in danger of deteriorating into bureaucracy. Leaders know that responsibility is not the same as authority, which is why leadership can be exercised at any level of a hierarchy.

⁷ White, *Overview Effect*.

A good example of how to make use of hierarchy without falling prey to its dangers is the organizational culture of NASA in relation to astronauts, which is intentionally designed to prevent status from becoming overly institutionalized. Here is Canadian astronaut Chris Hadfield describing how this is done in a way that supports the ultimate mission:

Astronauts who've just returned from space get a lot of help from NASA with the "moving on" part. When you report back to the Astronaut Office at JSC [Johnson Space Center], there's no hero's welcome. Rather, you get a brisk acknowledgment—"Good job"—before being unceremoniously booted off the top rung of the organizational ladder, at least in terms of visibility and prestige. Astronauts fresh off the Soyuz are reabsorbed back into the support team as middle-of-the-pack players, essential but not glorified. In most lines of work there's a steady, linear ascent up a well-defined career ladder, but astronauts continuously move up and down, rotating through different roles and ranks. From an organizational standpoint, this makes sense: it keeps the space program strong at all levels and also reinforces everyone's commitment to teamwork in pursuit of a common goal—pushing the envelope of human knowledge and capability—that's much bigger than we are as individuals. For astronauts, too, it makes sense, because it helps us come right back down to Earth and focus on our job, which is to support and promote human space exploration.⁸

Thus a "zero-g culture" is one in which leadership provides orientation derived from the organizational context rather than from the organizational reporting structure. This can lead to stronger organizations in which not only is the whole greater than the sum of its parts, but also each part feels productive and valued by virtue of its contribution to the whole.

Lesson #4: Leadership is Knowing Who You Are

On Earth, there is another fundamental distinction we have drawn and then forgotten we did so. This is the distinction between inside and outside, which works well enough when dealing with objects, but begins to break down when dealing with oneself as something other than an object. For example, notice what happens when we inquire: What is a self and where is it located? Or, where is your identity? Usually we locate the self somewhere inside the head, which preserves the illusion and all appears well. If, however, we begin to ask ourselves new questions that challenge our established perceptions, then we may encounter a kind of disorienting "space sickness" similar to what some of the astronauts experienced in orbit.

The distinction between "me" and the world has also become an apparent separation; "me" seems clearly to be inside and the world outside. But this assumption begins to break down under closer scrutiny. After all, where do I end and where does the world

⁸ Chris Hadfield, *An Astronaut's Guide to Life on Earth: What Going to Space Taught Me About Ingenuity, Determination, and Being Prepared for Anything* (London: Macmillan, 2013).

begin – my skin, the outer covering of my brain? And how can it be that experiments in quantum physics demonstrate again and again that observer and observed cannot be separated, that the scientist is, in fact, part of the experiment?

When applied to people working in organizations on Earth, this distinction leads to a surprising insight.

Since perception happens within the observer and occurs as a function of the distinctions drawn by the observer, it is accurate (though admittedly sounds strange) to say that the observer is not in the organization, but rather the organization is in the observer. For example, an organization cannot be found anywhere outside the perceptions of the various stakeholders, neither in a building, nor in the customer database, nor in the financial reports, nor in the corporate charter. An organization occurs only in the perception of an observer as an emergent context in the moment of awareness. In other words, perception is a creative act that brings forth an organization; there is no organization already there waiting to be observed.

Thus, bringing the Overview Effect down to Earth requires a radical rethinking of what a human being is from being a part of a whole to being the whole itself, which occurs when inside/outside is revealed to be a distinction and not a separation. Perhaps the astronauts had so much difficulty trying to explain what they had encountered in space because the Overview Effect altered not only their experiences of the Earth, but also their experiences of themselves. Referring to something that occurred on his way back from the moon on the Apollo 14 voyage, Edgar Mitchell addressed this shift of identity when he wrote:

I experienced what has been described as an ecstasy of unity. I not only saw the connectedness, I *felt* it and experienced it sentiently. I was overwhelmed with the sensation of physically and mentally extending out into the cosmos. The restraints and boundaries of flesh and bone fell away. I realized that this was a biological response of my brain attempting to reorganize and give meaning to information about the wonderful and awesome processes I was privileged to view from this vantage point.⁹

Although Mitchell appears to have experienced a more powerful version of the Overview Effect than was reported by other astronauts, his description captures the essence of transcending the inside/outside distinction and points to what might be possible for others on Earth.

Human beings are not merely objects; nor are we solely subjects. That would be to view the elements of human experience in isolation from one another, and indeed, that is exactly what the Newtonian/Cartesian paradigm does. It takes the subject/object distinction and makes it into a separation that affects every aspect of human life. But human beings are not parts relating to other parts hoping to discover the whole. The message that the astronauts brought back from space is that each of us is the whole.

⁹ Mitchell, *The Way of the Explorer*, 113 (emphasis original); see White, *Overview Effect*, 38 for a fuller discussion.

And while such an insight does not fit easily into what the mind can understand, it does present us with a new horizon of possibility to explore – the possibility of creating context for human organization on Earth. Leaders of the ancient world who went to Delphi to consult the oracle were confronted by the following words inscribed on the walls of the Temple of Apollo: “Know Thyself.” This piece of advice, also inscribed in the stars, is just as valid for leaders today.

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Editors’ Notes: This article opens up a range of interesting philosophical issues about the relationship between perception and reality and it emphasizes the value of shifting our viewpoints to take a larger view. This fits in well with the ethos of the *Journal of Space Philosophy*. **Gordon Arthur**.