

# The Art and Science of Leadership

Charles J. Palus

Leadership is an art. Leadership is a science. Which is it?

I think that most of us accept leadership as both, practicing it with all the knowledge and experience at our disposal. But what does it mean to say that leadership is *both* an art and a science? Science and art often seem opposite. They tend to be disconnected in our educational systems, workplaces, and communities. And many scientists are warning that science is under attack from those who regard it as a set of opinions rather than a source of objective truth. Can science and art thus be so readily mixed in the practice of leadership? If we value the objectivity of science, can it really be a good idea to blend in the biases of artistic construction?

Recently, my colleagues and I have been studying how people successfully understand and resolve complex challenges—those that do not yield to unambiguous technical solutions—in their shared endeavors. We have worked with a wide variety of people, including leaders as well as scientists and artists. As I watch them explore challenges in their work, I am struck by the relatedness of science and art—not in the specific products, which indeed tend to be very different, but in the underlying processes. Perhaps science and art are not so different. If we knew more about the ways they are alike, we could better apply their combined power to leadership situations.

I define *science* as careful observation in the course of forming and testing of ideas, subject to a questioning community. *Art* I define as the modification of things by human skill to achieve form, function, and meaning (obviously this includes much more than the fine arts). Although specialization often requires high levels of expertise, notice that these general definitions have the potential to embrace the activities of all sorts of people in organizations, including leaders.

What are the underlying ways in which science and art are related? There are many, and they vary by specialty; here I offer four that I think are fairly general: science and art are sensorily rich, personal,

based in inquiry, and experimental. According to prevailing stereotypes, the first two of these characteristics are strongly associated with art and the latter two with science, but let's look instead at the connections. Remember, these describe underlying processes—*how* to do the work—rather than the final products.

## Science and Art Are Sensorily Rich

Art is, of course, but is science? From its origins in primitive astrology and agriculture, empirical science has always been an arena for heightened sensory taste and perceptual awareness. It is true that our senses—vision, touch, taste, sound, and smell—can be unreliable, and that machines have changed the way we use our senses for precise observations. But adequate reliability and precision have come through training and enhancing the senses rather than avoiding their use. Barbara McClintock spent a lifetime observing heritable features on ears of corn she raised; the genetic patterns she saw led to her Nobel prize in medicine. McClintock's knowledge was based in ceaseless and skillful looking. Her biographer defines her distinctive talent as *eyesight*, a powerful means of *insight* based on a continuity between mind and eye.

What are the equivalents of eyesight in the domain of leadership?

## Science and Art Are Personal

Once again, art is, of course, but is science? To be valid, scientific knowledge must eventually stand independently from its originators. But it is equally true that scientists invest enormous personal passion in their work. Scientific work often takes on the character of a quest, replete with all manner of so-called unscientific beliefs, tastes, and biases. Successes emanating from such personal pursuits are well documented. Isaac Newton articulated the laws of motion and calculus while pursuing alchemy and magic. The voyage of the HMS *Beagle* defined the person of Darwin, who in turn defined the study of evolution. Personal bias in science is corrected



EDITOR'S NOTE: Shortly after the founding of *Leadership in Action*, the editor, Bill Drath, asked David Campbell if he would be willing to write a regular column for the new publication. Bill envisioned it as a series of short pieces that would take a creative look at leadership, veering off the typical path to follow clues that imagination hinted might be meaningful. His proposed name for the column was *Inklings*.

David accepted the challenge and the name, and the first *Inklings* appeared in May 1982, in the second issue of our second volume year.

Now in this issue, exactly seventeen years later, we are publishing his sixty-first, and final, column.

Many things could be said on this occasion, but in the spirit of economy that David has so successfully embodied in his columns, I will limit myself to two.

First, I want to assure our readers that this column represents not the end of David's work in *LIA* but a redirection. He will continue to write for us, doing feature articles as he works on a book.

Second, I would like to thank David for his extraordinary contribution to *LIA* thus far. When I became editor almost ten years ago, I quickly learned that one thing I could count on for each issue was an *Inklings* column, regardless of the demands of David's being the Smith Richardson Senior Fellow in Creative Leadership and regardless of his travel schedule, which would exhaust three people.

I also learned that there was no way of predicting what the column would be about. David has stayed true to Bill's initial vision, sometimes looking at leadership directly, sometimes out of the corner of his eye, but always pursuing the imaginative. This has resulted in his writing on a broad range of topics: risk taking, father-son relationships, motivation, technology, enthusiasm, decision making, humor, the perils of travel, civic art, health, and cultural understanding—to name only a few.

Anyone who is interested in seeing the full range of David's explorations is referred to *The Complete Inklings: Columns on Leadership and Creativity*, which CCL will soon publish. For more information on it, visit the CCL Web site at [www.ccl.org](http://www.ccl.org) or call 336/286-4480.

Martin Wilcox



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CCL is an international, nonprofit educational institution whose mission is to advance the understanding, practice, and development of leadership for the benefit of society worldwide. Founded in 1970, it is headquartered in Greensboro, North Carolina, and has campuses in Colorado Springs, Colorado; San Diego, California; and Brussels, Belgium; it also has an office in New York City. CCL offers 24 different educational programs attended by more than 27,000 people annually; distributes products, including 16 assessment instruments and simulations; conducts research on the nature of leadership, leadership development, and leadership education; and publishes a range of reports, from practical guidebooks, to conceptual works that frame important issues, to research reports. For more information on CCL and its work, call 336/545-2810, send an e-mail to [info@leaders.ccl.org](mailto:info@leaders.ccl.org), or visit its Web site at [www.ccl.org](http://www.ccl.org)

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not by eliminating the personal but by peer review, further research, and (sometimes) by the practice of critical self-awareness.

How do we both encourage and correct for the personal in leadership situations?

### Science and Art Are Based in Inquiry

Science is, of course, but is art? These days we are bombarded by art designed to shock or manipulate, but most art (as I have defined it) is part of a question-rich conversation—an inquiry—between the artist and the viewers, users, of the art. As an example, consider the invention of point perspective during the Renaissance. Previously, the mural and the mosaic had been the dominant visual artistic devices, very effective in portraying icons and biblical narratives. Giotto and his colleagues introduced the then-startling technique of representing the world from a single, geometrically precise point of view, thus obtaining a unique perspective. This technique embodied a question, one that was to prove fruitful: What happens if we look at the world in this new way? This inquiry quickly spread to cartography, navigation, architecture, and engineering. (Author Leonard Shlain tells us that Renaissance children were educated to become professional perspectivists because of the practical demand for this new skill.) Point perspective was eventually to become the scaffold for Newton's physics.

How can leadership sustain fruitful inquiry into complex challenges?

### Science and Art Are Experimental

Once more, science is, of course, but is art? Although art is often viewed as mainly an expressive outlet not given to sober testing, in most cases, rational experimentation plays a central role in the ongoing process of creating good art. Potters for example are akin to cooks and chemists when they develop recipes for clays and glazes, keeping detailed records of their tests and forming guiding hypotheses. Very few artists are aloof from the opinions of their audience or customers and at least implicitly experiment in making their work more desirable or effective.

Surgeons are often viewed as artists, and operations are creative acts within tight constraints. Surgery is based in experiments in the field and more informally in the work of individual surgeons as they analyze their experiences. The term *operator* as applied to surgeons originally had negative connotations of sleight of hand, and rational experimentation eventually was the element that elevated surgery from quackery to a robust and respectable art form.

What is the role of leadership in promoting experimentation?

### Cautions and Final Words

The research my colleagues and I are conducting suggests that these crossing points between science and art can also enhance leadership for groups addressing complex challenges. But two cautions are in order. First, an adequate level of competency is required in these processes. For example, it helps considerably to be aware of, and to value, what is highly personal to you in your work and to be able to *depersonalize* when necessary. And experimentation requires discipline, practice, and group support. Second, these four processes are (ideally) mutually correcting and should be used together in concert: inquiry and experimentation help individuals resolve sensory and personal biases, and vice versa.

Human intelligence is perhaps not so radically different across its various endeavors as it sometimes appears. I close with a story of how two very different communities found leadership at the intersection of art and science. Robert Wilson was the founding director of the Fermi National Accelerator Laboratory (Fermilab), the high-energy particle accelerator facility at the forefront of modern physics. Wilson, a leading physicist and an accomplished sculptor, designed Fermilab as an embodiment of the aesthetics of science, in the belief that "the way science describes nature is based on aesthetic decisions." He modeled the administration building on the proportions of Beauvais Cathedral in France (once referred to as "the Parthenon of French architecture"). Wilson admired the community of medieval cathedral builders and compared them to the community of accelerator builders: "Both were daring innovators, both were fiercely competitive along national lines, but yet were basically internationalists. . . . [The cathedral builders also] recognized themselves as technically oriented; one of their slogans was 'Ars sine scientia nihil est'"—that is, "art without science is nothing."

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EDITOR'S NOTE: *One of the goals of Leadership in Action is to help our readers focus on, and exchange ideas about, issues of practical importance to leaders. If you have such an issue that you would like to raise, or if you have a response to this or a subsequent column, write it out (in no more than five hundred words) and send it to me at the address given in the masthead.*



# Leadership Stories

Gina Hernez-Broome and Dianne Nilsen

**W**hat is good leadership? Is it offering a novel vision for your organization? Forecasting the future in your market? Offering never-before-thought-of, knock-your-socks-off ideas to solve problems? All of these are certainly examples of leadership, but in the following six stories, senior executives attending CCL's Leadership at the Peak program often cite apparently more mundane, but no less important, examples.

"Our firm was asked to sign a contract to participate in a large manufacturing project. The profit level would have been high, but the project would have affected the whole company and our relationship with other clients. The president of my company turned down the project. His action showed us that relationships and good customer satisfaction are more important than just short-term profit. He reinforced our relationships with our other clients and our employees."

"The business was facing a crisis and its key market segment was under attack from competition. It needed to develop a breakthrough technology to maintain and expand market leadership. Without R&D funds, it would have become a cash cow facing downsizing. The leader put his career on the line in front of everyone to get the R&D funds necessary. He promised tangible results within the fiscal year and put together a detailed development program with milestones to get funding. He and his team never failed to give weekly progress reports. The team was on a mission! They worked sixty-plus hours a week for eight months. Finally, they achieved a breakthrough and their profits boomed. Their success resulted in promotions and recognition for key players."

"The first major off-site meeting of the top forty executives in the company was into the end of the first day, with one day to go. The agenda was crowded and no clear purpose for the meeting was identified. Many executives, meeting for the first time, were feeling demotivated. The professional facilitator failed to diagnose or ameliorate the problems. The chairman decided overnight to scrap the second day's elaborately constructed agenda and fire the professional facilitator. He got up very early and

wrote a seventy-five-minute speech from the heart, going over what he had hoped the meeting would achieve. He delivered his speech, sitting down, using a low-key fireside chat style. The meeting was rescued. By the end of the second day, some worthwhile progress had been made in communicating a sense of mission and developing a common understanding of values."

"Eight years ago our organization was totally without technology. At that time I was working on trying to improve this area. One day I got into a taxi and began a conversation with the driver. I discovered that the driver also worked with computers. He said he might be able to help. I asked him to come in and write a plan for solving the technology problem and I hired him. Today the division has sold, developed, and collaborated with twenty-five other companies and it projects millions in revenue under the taxicab driver's direction."

"The general manager developed an innovative approach to product development and manufacturing. This new approach involved many things that had not been tried before and required the organization to spend hundreds of millions of dollars. Despite opposition from management above him, the general manager provided resources to fund his ideas. He put his personal reputation on the line in his active support of the program. He passionately pursued his ideas and fought institutional bureaucracy that wanted to stop the program. In the end, the organization adopted the general manager's ideas and incorporated them into its other product development efforts. He will be remembered as the leader who championed the innovation rather than taking the low-risk get-along-and-go-along philosophy."

"Expansion of our law firm in Chicago had been discussed among the partners for quite some time. Although our competitors had opened Chicago offices, much controversy existed about the feasibility and wisdom of doing so. Our managing partner was strongly in favor of having a Chicago office and made it very clear that he would push this agenda until he succeeded. Notwithstanding what might end up being a significant cost, he engineered a merger with another firm in Chicago. He made it



# Leadership vs. Management

## LEADERSHIP

Vision  
Strategy  
Flexibility  
Motivation  
Teamwork

## MANAGEMENT

Statistical Processes  
Continuous  
Improvement  
Process

# Managers Must Do Different Things!!!

	Urgent	Not Urgent
Important	Crisis Problems Tasks	Planning Vision Opportunities Relationships Cont. Improvement
Not Important	Pressing Popular Proximate	Waste

DATE: \_\_\_\_\_  
PAGE: \_\_\_\_\_



# PEOPLE VS. THINGS

## **Things**

Structures  
Control  
Efficiency  
Management  
Program  
Expense  
Techniques  
Transaction  
Utility  
Measurement  
Compromise  
Effects/Symptoms  
Facts  
People are assets  
Time Management  
Administrative Efficiency  
Left Brain  
Science  
Impatient  
Scarcity mentality

## **People**

Spontaneity, Serendipity  
Release, Empower  
Effectiveness  
Leadership  
Programmer  
Investment  
Principles  
Transformation  
Principle-Centered Power  
Discernment  
Synergy  
Causes  
Motivation  
People are intrinsically valued  
People Leadership  
Customer Service  
Right Brain  
Art  
Patience  
Abundance mentality

## Let's Get Rid Of Management

People don't want to be managed. They want to be led.

Whoever heard of a world manager?

World leader, yes.

Educational leader.

Political leader.

Religious leader.

Scout leader.

Community leader.

Labor leader.

Business leader.

They lead.

They don't manage.

The carrot always wins over the stick.

Ask your horse.

You can *lead* your horse to water, but you can't *manage* him to drink.

If you want to manage somebody, manage yourself.

Do that well and you'll be ready to stop managing.

And start leading.

-A message as published in the *Wall Street Journal* by United Technologies Corporation, Hartford, Connecticut 06101.