7 Leadership Blind Spots: Adult Development, Emotional Intelligence, and Leadership Effectiveness Among Biotech R&D Leaders

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For Marlene, Gabi, Jessie, Yael, Orly

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Abstract

In this multiple-case study of 6 mid-level leaders working in biotech R&D--an archetype of a complex, uncertain, turbulent, and, multidisciplinary 21st-Century workplace--I explore the importance and interaction of mental complexity (MC), an aspect of adult development, and emotional intelligence (EI) for leadership effectiveness (LE). MC concerns the sophistication of the mindsets we use to construct stories for ourselves about the meaning of things. EI refers to one's ability to manage one's own emotions and read others' emotions. I investigate how MC and EI contribute, separately or together, to LE.

To select 6 case-study subjects I administered two psychometric tests: MSCEIT (an EI test) and LDMA (a test of MC) to 11 R&D leaders working at the same biotech company. I selected 2 contrasting groups: 2 people who scored *high* on MC and *moderate* on EI and 4 people who scored *moderately high* on MC and *moderate* on EI. I then conducted semi-structured 360-degree interviews with case-subjects, 2 of their superiors, and 2 of their subordinates. Interview data analysis included scoring a measure of LE created for this research.

Interviewee responses suggested that MC and EI tend to work jointly to enhance LE and that insufficiency of MC and EI are associated with one or more of 7 fault lines of leadership, patterns of behavior that diminish LE. I call these 7 LE-diminishing behavioral patterns 7 Leadership Blind Spots. Each subject exhibited at least one LE blind spot, with significant variability between domains (technical, interpersonal, and organizational), context (team, cross-functional team, and organization), and situation. Using the acronym BLINDSPOT as a mnemonic device, the patterns of behavior that

tend to decrease LE are: ***B****eing too Forceful,* ***L****acking Visibility,* ***I****nsecure Authority,* ***N****eed to be Political,* ***D****istance and Decenter,* ***S****top Enabling, and* ***P****roblems* ***O****n* ***T****eams.*

These results are hypotheses to be explored in future research. Leadership education implications include interventions to help leaders become aware of and begin to address their own blind spots as well as interventions to help leaders improve their MC and EI abilities.

Part I

Mental Complexity and Emotional Intelligence: A Dual Perspective on Leadership Effectiveness

1

Introduction

Leadership is an activity that is vital to members and other stakeholders in all kinds of social systems, including families, religious and secular communities, government, healthcare, education, non-profits, NGO's, and business. Leadership in these groups often influences the way we work and live.

Consider the case of business leadership. Most companies begin as family businesses. They are shaped by the goals of the founders. While many businesses fail some succeed to such a great extent that they become household names throughout North America and the world. Even with the arrival of outside investors, professional managers, and merger-and-acquisition partners, founders often continue to own a substantial interest in the companies and have a dominating influence. Their goals continue to form a large part of the basis of corporate strategy. Founders are often focused on developing new technologies or innovations in order to increase profits and wealth. This story has been so in modern business at least since the mid-18th century. (The ancients likely experienced similar dynamics.)

In the history of American business since the Industrial Age began, a select few entrepreneurs have become household names and have made a large impact on societies around the globe. In the 19th Century examples included Andrew Carnegie (U.S. Steel), J.P. Morgan (J.P. Morgan), Thomas Edison (Edison Illuminating Company), Levi Strauss (Levi Strauss), and John D. Rockefeller (Standard Oil). In the first 80 years of the 20th Century household names included Walt Disney (Disney), Sam Walton (Wal-Mart), Milton Hershey (The Hershey Company), Estée Lauder (Estée Lauder), and still going

strong are the likes of Oprah Winfrey (Harpo), and Richard Branson (Virgin). Beginning in the 1980's and continuing on to the 21st Century, the knowledge-based Information Age includes founders such as Bill Gates (Microsoft), Steve Jobs (Apple), Ted Turner (CNN), Larry Page & Sergey Brin (Google), and Mark Zuckerberg (Facebook). Efforts to realize the goals of these founders have shaped organizations and influenced the kinds of skills and abilities needed to be effective leaders. Economic, political, regulatory, technological aspects of the environment in which these founders operate have also shaped organizational leadership.

The current environment is enormously fast moving, uncertain, turbulent, and complex. This thesis is about two abilities that leaders might need to be effective in this context. It is set in a biotech company called SF Therapeutics. The following fictional vignette is based on an illustrative case I used in my qualifying paper (Shiner, 2007) to explore the possible joint impact of mental complexity and emotional intelligence on leadership. It imagines the company in which I conducted this research, SF Therapeutics, at its very beginnings. I introduce my thesis with this vignette to present a story that shows some challenges of leading in the science-and-technology soaked, globalized, and turbulent context of the 21st Century. The case is also meant to prime the reader for this manuscript by presenting leadership challenges that could plausibly be met successfully with abilities in emotional intelligence, mental complexity, or both.

A Fictional Vignette of 21st Century Leadership: SF Therapeutics in its Early Days

Bryan let out a long and heavy breath and reclined in his chair. He soaked briefly in the late-afternoon sun that shone through his office door. Then, as he often did, he swiveled around180-degrees to look out his window at San Francisco Bay's verdant waters.

Bryan loved this panorama. It provided calm during his increasingly hectic days as CEO of SF Therapeutics. When Bryan and his two partners relocated their young biotech company from UCSF to Mission Bay, Bryan won the draw for first pick of office. He chose the one with the best view.

San Francisco's Mission Bay had already been beautifully redeveloped. Decaying railyards, shipyards, warehouses, and factories were transformed into an affluent neighborhood of luxury condominiums, hospitals, and biotechnology companies. Even UCSF set up a medical center there. When Bryan and his two partners moved in, over 55 life science companies had already leased a sizeable chunk of the 1.7 million square feet of new office and lab space.

Like all new biotech firms, SF Therapeutics faced steep scientific, financial, and regulatory challenges. The 3 partners had cleared some important hurdles by attracting the funding and talent needed to develop their research into a new molecule. They were, however, years and many rounds of funding away from clinical trials, let alone FDA approval. And all of that depended on uncertain science.

As he surveyed the Bay, Bryan noticed a yacht, halfway to Alameda. The boat was yawing and undulating dangerously. The bow disappeared repeatedly from Bryan's view as it dipped over the crest of each wave and the stern vanished as the boat climbed

the next swell. Startled, Bryan awoke from his reverie. The boat's perilous voyage brought to mind his own journey as a scientist-turned-leader. With no training and little support he often felt in over his head (Kegan, 1994) as CEO. Watching the sailboat being tossed about reminded him that he sometimes felt like a hapless ship's captain caught in high seas beyond his capacity to navigate. In various situations and with certain people, Bryan found it increasingly challenging to keep from feeling overwhelmed.

The current project making Bryan feel swamped was the joint venture negotiations. The whole deal was stretching Bryan past his limits. He used to work 70-plus hours per week in his UCSF lab. He comfortably tolerated the ambiguity of going months without knowing if experiments would work. They often didn't. But the uncertainties of running a business were much more dependent on other people than bench science. Bryan did not expect these challenges and felt unprepared for them.

It had been three years since Bryan, his co-investigator Dan, and their mentor, Arthur, made their path-breaking discovery. Their NIH-funded research took four years but yielded the results they hoped for. The trio discovered the possibility that a cell protein known as tumor necrosis factor (TNF) played an important role in inflammatory (autoimmune) disorders. They were elated and excited to have their findings published in the prestigious journal *Nature Biotechnology*.

In their experiments, genetically engineering TNF levels in certain mice caused the murine[1] immune system to attack rather than protect organ tissues. TNF seemed to

[1] "Overall, mice and humans share virtually the same set of genes…human, mouse and other mammals shared a common ancestor approximately 80 million years ago. Therefore the genomes of all mammals are comparably similar…. However, the mouse has a major advantage [for research] in that it is a well-established experimental model. Not only can genes easily be found in mouse genome sequence, but it also is possible to test

excite immune system cells. This meant that TNF might be a good target for new drugs. If new drugs could inhibit TNF and the over-activity in cells that it caused, relief might come to humans with immune disorders such as rheumatoid arthritis.

Motivated by the potential implications of their findings for drug discovery and frustrated with university politics, the three biologists decided to start a biotech firm to commercialize their scientific victory. With UCSF's long-established connections to venture capitalists, the funding came more easily and abundantly than expected. Their follow-on experiments also produced promising results.

Bryan didn't anticipate how many new problems this "success" would create for him. He soon found himself leading an organization of fifty people and dealing with attorneys, accountants, and pharmaceutical companies. As a scientist he felt as if he spent too much time prosecuting patents and dealing with business concerns -- lately negotiating a joint venture with a Japanese biotech company.

Bryan's partners—Dan (Chief Research Scientist), and Arthur (Chairman of the Board)--were concerned about the company's failure to validate TNF as a reasonable target. Hiring scientists with the skills for genetically engineering mice to express different levels of TNF proved to be very difficult. The job market for such scientific talent had become extremely tight due to a cyclical boom in biotech funding. Dan thought that they could find and hire or train the right people, but it would likely take another year. This would be a big setback for SF Therapeutics' R&D. To add to the urgency,

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experimentally the function of those genes in the mouse. Thus, scientists can mimic in mice the effect of DNA alterations that occur in human diseases and carefully study the consequences of these DNA misspellings. Mouse models also afford the opportunity to test possible therapeutic agents and evaluate their precise effects" (NIH, 2010).

since they had already published, others might gain a lead in developing and patenting a TNF inhibitor.

John, a board member and partner at Isis Ventures, SF Therapeutics' lead VC investor, didn't think they had a year to wait. He wanted SF Therapeutics to file patent applications, negotiate strategic alliances and licensing deals with major pharmaceutical companies sooner than that. Although Arthur expressed reservations, other members of the board agreed with John. The board voted that SF Therapeutics should seek a joint venture with another biotech company to gain a leg up in its R&D. A joint venture could enable SF Therapeutics to beat competitors to market and, in the opinion of the board, improve their chances of negotiating a favorable licensing deal with a big drug maker. Not only would a partner be an important source of funding for clinical trials, it might establish a valuable channel for selling the drug if the R&D made it that far. With a charge from the board, John arranged an initial meeting in Japan between Bryan and Dr. Keigo Tahoru, the 62-year-old president of Nomura Biosciences.

Bryan had butterflies and didn't sleep for the entire 11-hour flight from San Francisco to Tokyo's Narita International Airport. His apprehension quickly subsided upon meeting Dr. Tahoru who was outside customs, waiting to meet him. Tahoru bowed deeply and offered Bryan his business card. Bryan clasped his own business card. He bowed and offered it to Dr. Tahoru who received it with both hands and studied it, oohing and aahing audibly in apparent approval. Bryan immediately felt that the older man was warm, quiet, and gentle--not foreboding, as he had feared.

On the first night, Dr. Tahoru hosted Bryan at his home for dinner. Bryan followed Dr. Tahoru into the genkan (entranceway) of the traditional Japanese house--a

wooden structure with a steep tiled roof. Dr. Tahoru removed his shoes and then gestured for Bryan to enter the house. Bryan removed his own shoes and stepped from the genkan into the Tahoru residence.

Once inside, Bryan saw the space was divided into rooms and corridors by many paper and wood-lattice shoji (sliding partitions). He also admired the traditional woven rush tatami flooring. Directly ahead, parted shoji exposed a central courtyard that enclosed a carefully manicured Japanese garden, with exotic-looking Japanese plants, strange flowers, and a rock garden in the center.

Dr. Tahoru gestured for Bryan to follow him down a hallway where he parted two panels on his right and invited Bryan to pass between them into the dining room. Following his host, Bryan sat down on a mat at the low dining table.

Bryan and Dr. Tahoru had much to talk about as they sat in the peaceful room. Mrs. Tahoru, adorned in a kimono and sandals, served a meal of miso soup, seaweed salad, sashimi, simmered vegetables, and grilled mackerel. Bryan found the aromas pungent and strange--not like his sushi haunts in San Francisco. By the time Mrs. Tahoru poured tea, the two biologists had begun to connect.

In the days that followed, a sense of harmony and trust between Keigo and Bryan grew through meetings at Nomura during the day and over drinks and dinner in the evenings. At the end of each day, Dr. Tahoru and his team gave Bryan an education in Japanese history and cuisine. At a different restaurant each night, they ordered sushi and tempura, which were familiar to Bryan, and other Japanese delicacies that were new to him such as mouthwatering kaiseki and wagyu (Japanese beef) prepared as sukiyaki, shabu-shabu, and steak. Though communication was slow and somewhat difficult, the

group of scientists talked for several hours each night as they ate and drank copious amounts of beer.

During the days, Bryan exchanged information and scientific views with scientists at Nomura. Even though Bryan felt a bit disoriented at Nomura, its science felt very familiar. Most importantly, Nomura's scientists were experienced at genetically engineering mice to express different levels of various antigens, enzymes, and proteins. To Bryan, they seemed highly capable of producing mice that would express different levels of TNF. The evidence he collected certainly seemed to support the preliminary conclusions about Nomura that he, Dan, and Arthur had drawn from a distance.

After just two days, Bryan began negotiating a joint-venture agreement with Dr. Tahoru. He succeeded, or so he believed, in negotiating terms and an in-principle agreement with Dr. Tahoru. He agreed to let Nomura's attorney draft the initial agreement.

Relieved, Bryan slept soundly on the return flight across the Pacific. However, his sense of accomplishment proved to be short-lived. In the week following his touchdown at SFO, a host of new issues arose. The agreement Nomura's lawyer e-mailed ended up being quite different than what Bryan thought was agreed. The board was not pleased with this result. Dan seemed angry with Bryan, too. Communications with Dr. Tahoru continued to be polite and friendly, but didn't seem to be getting anywhere. Bryan felt no further along at clarifying the issues let alone resolving differences.

Reaching agreement with Nomura Biosciences felt high-stakes for Bryan. A joint venture would likely mean significant changes in SF Therapeutics' research and business operations. Personally, he saw the deal as a highly visible test of his leadership abilities.

While self-confidence had never been a problem for Bryan before, he privately doubted his abilities as a leader in this uncertain and complex situation. He needed to adapt and learn at breakneck speed and mobilize others to do the same.

What skills and abilities might Bryan need to do this work? Through 6 case studies of R&D leaders at Bryan's company, some years after its founding, the present dissertation explores two possible candidates: emotional intelligence (EI) and mental complexity (MC).

A Joint Perspective on Leadership Effectiveness

There is ample evidence that both mental complexity, a central aspect of adult development, and emotional intelligence are being widely applied to issues of leadership and leadership education[2]. Even so, it is unclear whether these two perspectives are being applied together in any kind of intentional way. Given the distinct theoretical origins[3] of these constructs, it would be understandable if leadership scholars and educators have not looked at them together. Likewise, it is understandable that the interaction of adult development theory and emotional intelligence theory is largely overlooked in the EI and MC literatures.

Might the separate treatment of MC (K.W. Fischer & Bidell, 2006; Kegan, 1982, 1994) and EI (Mayer & Salovey, 1997; Salovey & Mayer, 1990) be an oversight? It may be that our MC abilities and EI skills work together, particularly in complex social

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[2] Emotional intelligence and adult development may, in effect, form part of a core curriculum (Hunt, 2004) driving the multi-billion dollar annual investments by

[3] Adult development theories emerged from the fields of developmental and personality psychology (Souvaine, Lahey, & Kegan, 1990). On the other hand, as Mayer and Salovey (1997) explain, emotional intelligence grew out of the psychological literature on cognition and emotion and multiple intelligences (Gardner, 1983).

interactions like leadership. Leaders' sets of EI skills may have played a role in the finding that leaders at higher levels of MC tend to lead more effectively than those with lower levels of MC (Rooke & Torbert, 1998)[4]. Similarly, EI may figure into observations (e.g. Goleman, Boyatzis, & McKee, 2002) and emerging research findings (see Emmerling, 2015) on strong connections between EI and LE.[5]

Yet, these two constructs are not necessarily yoked. Consider the case of Larry Summers' failed leadership of Harvard University. "His well-known desire to change Harvard's culture…was accompanied by slights to some faculty members and missteps like his statement…that women might lack an intrinsic aptitude for math and science," (Finder & Zernike, 2006). Summers, a brilliant economist, former U.S. Secretary of the Treasury, and primary economic adviser to Presidents Clinton and Obama surely had a high level of MC. Yet, as president of Harvard, he didn't exhibit a high level of EI abilities.

On the topic of bad leadership[6], it is important to stress that neither MC nor EI skill sets lead to moral or ethical behavior. Gardner (1993) emphasizes that personal intelligences (i.e. EI) can just as easily be used in the service of Machiavellian and evil leadership behavior as they can in making lasting social contributions[7].

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[4] In a 10-year study of 10 organizational development efforts Rooke and Torbert found that CEOs at higher levels of MC were more effective at transforming themselves and their organizations.

[5] As reported in Chapter 2, there is not yet empirical evidence about the association between Mayer and Salovey's model of EI and LE.

[6] Kellerman has observed that a realistic and holistic view of leadership acknowledges the dark side of human nature as in clergy sex abuse, white collar crime, and murderous heads of state (Kellerman, 2004) .

[7] "Stalin and Gandhi both understood other individuals," Gardner explains, "but put their interpersonal intelligences to diverse uses" (1993, p. xxiv).

Why Leadership?

Since we use our MC and EI abilities in every kind of relationship and social system, why only consider their joint function in the realm of leadership? MC and EI are not inherently about leadership. In the realm of work, for example, other domains such as expertise, professional behavior, behavior in all types of jobs, or problem solving could have been my subjects. Or, a study of significant personal relationships such as marriage, parenting, participation on a sports team, performing arts ensemble, or in a club, would have suited MC and EI. I focused this study on leadership because it provided motivation for this investigation and a rich context for examining the potential joint operation of MC and EI. As well, scholars working on issues of MC and EI often address issues of leadership and therefore make up an audience that may have a stake in considering these two perspectives jointly.

In the world beyond academia, research on effective leadership may also be used to help address what Ronald Heifetz called, " a crisis in leadership in many areas of public and private life." (1994, p.2) Evidence of such a crisis is not hard to find.

In public life we see crises of leadership in every sphere –from vexed diplomacy that fails to foster cooperation or resolve conflicts, to oppressive dictatorships in the Middle East, to perennial gridlock in Washington, to corrupt public officials in communities around the globe. Consider Illinois Governor Rod Blagojevich's conviction for corruption and the fact that three of his recent predecessors were also convicted for using their political position for personal financial gain. In addition to revelations of corruption among lawmakers, we regularly read about failed public leaders due to sex scandals. Take John Edwards' secret family, Anthony Weiner's sexting, or CIA Director

General David Petraeus' affair outside of his marriage with his biographer as just a few of countless examples. Despite their competence on the job, these leaders of American government and military lost the trust of followers and therefore their ability to lead effectively. They are canaries in the coalmine of public leadership that need serious attention.

Crises of leadership are also seen everywhere in business. Few large companies seem to genuinely embrace diversity, equal pay to women for work of equal value, or do anything about the unjust and pervasive problem of income inequality. On the contrary, these organizations tend to create and perpetuate these problems. American CEO's, for example, routinely earn over 300 times the income of their average workers and almost 800 times as much as minimum wage earners (Dill, 2014). Or, consider the crises of leadership underpinning the financial meltdown of 2008.

"Leaders" in financial services caused the global economic crisis by selling mortgages to people who could neither understand nor afford them. They made bets with other people's money so large and so risky that when they failed they took their firms and the global financial system down with them. While CEO's were the ones paraded before politicians and the press, the crisis of leadership occurred at many levels, from senior management, to traders, to sales people.

After the initial recovery we continued to see a lack of leadership. When financial institutions received bailout money (through the Troubled Asset Relief Program) their leaders used too large a chunk of the funds selfishly. Rather than extending credit to help the economy recover, they took advantage of depressed market conditions to earn profits for their firms and bonuses for themselves. They could have used more of the money to

make loans that businesses and individuals badly needed. True, people in financial services created economic value, but on behalf of shareholders, and not for the vast majority whose tax dollars bailed them out.

Elsewhere in the investment business, hedge fund managers were busy with insider trading rather than carrying out their fiduciary leadership duties. Undaunted by the wreckage that Wall St. wrought on the global economy, these elite fund managers routinely cheated and profited at the expense of their stakeholders. It's hard to imagine that these white-collar criminals—whose clients included pension funds and government pension plans--took their responsibility to help people save for retirement seriously. Trading on inside information has been a business strategy for these leaders rather than an occasional lapse in judgment. They led on behalf of their self-interest, but failed customers and other stakeholders.

As with financial services, social systems demand effective leaders who can and will play by the rules, who are capable of leading through complex and uncertain terrain, and who not only craft and execute strategies for carrying out organizational missions or government policy, but, do so in a way which advances the common good. Leaders are called upon to battle climate change, to invent and adopt policies and business models that save jobs from being lost to lower-cost competitors, and adapt to fast-changing and truly disruptive technologies (Christensen, 2000). While it has always been thus, leadership has become particularly challenging in these uncertain times.

Leadership in the Early 21st Century

As Peter Drucker predicted (e.g. 1959, 1999; 2002), the world of work has grown more complex and uncertain in the early 21st Century. In both the West and the East—

e.g. North and South America, Europe, and Asia--leaders are now called upon to foster adaptation to changed features of the environment. A short list of important changes might include things like: increased lifespan; new computing and communications technologies; broadband Internet technologies, smartphone apps, and social media; other fast-approaching technologies (like new drugs and medical devices, new materials, wearable computing, and the Internet of Things); the rise of China and India in population growth, economic might, and political power; globalization that is characterized by more fluid movement of people, goods, and services around the globe than in the three historical waves of globalization; and intense global competition with production constantly moving to the countries with the cheapest labor—as in manufacturing moving from Southeast Asia to Africa. Within the workplace, flat organizations, steadily transforming jobs, teams that span time and place, and increasing diversity are strong currents.

The leadership challenges presented by these developments may be especially acute in sectors that are knowledge-based, globalized, highly complex, competitive, turbulent, uncertain, fast changing and, for some fields, highly regulated. Examples of such sectors include computer hardware, software, semiconductors, electronics, financial services, healthcare, NGO's, military, and governments.

Workers in these knowledge-based sectors, indeed in most sectors, are called upon to lead from wherever they sit. And, those who hold leadership positions must often work outside their areas of expertise and authority on multidisciplinary or cross-functional teams. Leaders are asked to lead without the benefit of positional power or authority.

As a sector, biotech is an exemplar of a complex, multidisciplinary, turbulent, and uncertain 21st-Century leadership context. Leaders in many other sectors--from technology, to social movements, to government, to clean energy, to public education--must deal with these same factors. But biotech leaders face these conditions in the extreme.

Drug development entails enormous business, scientific, and regulatory risk. It takes at least 10 years and $1 Billion to develop a new drug. The market is very highly regulated (e.g. by the FDA), globally competitive, and vulnerable to cycles of boom and bust for raising capital. As well, the drug program teams that lead drug development are very diverse, including leaders from disciplines as diverse as medicine, biostatistics, biology, chemistry, math, regulatory, toxicology, pharmacology, safety, and clinical operations. The top minds from many different national and ethnic cultures from East and West, North and South tend to work at biotech companies and thus the composition of drug program teams is often culturally diverse. As already mentioned, these people must influence and lead others without the benefit of positional authority.

Biotech, however, is perhaps more uncertain than other sectors because its product environment is largely unknown and unpredictable. There is much that modern science and medicine has yet to learn about the human body, how and why drugs work, and the bio-chemical, hereditary, and environmental aspects of disease. For instance, there are many monoclonal antibodies made by the biotech sector to treat cancer, but many cancers are still without effective treatments. Those treatments that do exist are highly toxic. Consider how that compares with technology companies, such as those in Silicon Valley. Such firms have a clear understanding of the hardware, software, and

networking systems on which their products are built. Even if a company, like Apple, designs its own chips, firmware, operating system, and application software—technologies that are unknown until they are invented--the technological environment is, ultimately, known. But, in biotech, doctors and scientists still do not understand why and how many drugs work. And drugs can turn out to be unsafe without prior warning after huge investments are already made and many people have already taken them. As a case in point, Merck's Vioxx achieved FDA approval, but after 5 years was pulled from the market after being prescribed to over 20 million people because it caused over 25,000 heart attacks and sudden cardiac deaths.

The challenges of leading in biotech R&D intrigued me and provided an archetypal context for studying leadership effectiveness and its relationship to EI and MC in the present era.

Research Question

The following research question informed the design and performance of the study: How do mental complexity and emotional intelligence contribute, separately or together, to leadership effectiveness?

Preview of Results

To answer this research question, I conducted 6 case studies of biotech R&D leaders who were at the Senior Director level (one level below VP) of SF Therapeutics. My initial plan was to compare two groups of 3 leaders similar on EI but different on MC. Ideally, one group would have had MC scores in the range of Kegan's Self-

Authoring Mind and the other group would have had MC scores at Kegan's Self-Transforming Mind. These levels are described in Chapter 2.

In keeping with Kegan's idea (1994) that work environments place mental demands on us that require a certain level of MC, I viewed the complex, uncertain, and multidisciplinary nature of biotech R&D (described in Chapter 2), as potentially requiring MC at the high and rare[8] level MC of Kegan's Self-Transforming Mind. To explore that notion, it was important to me to have one of the groups of 3 leaders with MC at that level. MC scores corresponding to the Self-Transforming Mind would suggest[9] that subjects possessed the MC skills necessary for reflecting on the limitations of their own thinking and for being oriented to the dynamic tension between multiple systems (e.g. multiple scientific and medical disciplines, business systems, organizational systems, regulatory systems). They would be able to tolerate paradox in their leadership choices and be able to deftly manage the intricacies and complexities of leading on multidisciplinary, cross-functional drug-program teams without the benefit of positional power or authority.

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[8] About 7% in samples cited by Kegan (1994).

[9] A more reliable and fair assessment of a leader's MC-skills and EI-skills would include multiple assessments, including multi-rater assessment of the leader's MC and EI. This was not feasible for the present study, as I did not have the significant resources and expertise required for such an approach. Other studies that use such an approach (e.g. Kaplan, with Drath, & and Kofodimos, 1991; Lyons, 2002) involve research by multiple people from institutions like the Center for Creative Leadership—an organization that has test-administration resources and expertise that I do not. Large companies sometimes use this more reliable, though not infallible, approach by employing assessment centers (Church & Rotolo, 2013 ; Howard & Bray, 1988).

Gardner's critique of psychometric instruments (e.g. 1999) and his concept of "intelligence fair" assessments illuminates the benefits of assessments based on multiple sources of evidence and on evidence of a person's understanding.

A Revised Approach

Taking stock of the evidence collected in the study, I realized I needed a new way to make sense of the data. Unfortunately, my sample did not permit me to make the comparisons and contrasts I hoped to make. Only 11 individuals, rather than 12 to 20, participated in the initial screening phase of the study. As well, instead of ending up with the hoped for two groups who were similar on EI but contrasting in MC, the reality was different. The two groups were similar on EI and different in MC, but only slightly so. The difference in MC scores between the groups tended to be 1 to 2 discriminations between Kegan's Self-Authoring Mind and Self-Transforming Mind. I did not have a group with MC scores at the level of the Self-Transforming Mind. This was unfortunate because a group like that would have enabled me to explore the fit between that level of MC and biotech leadership. More importantly, it would permit greater contrast with the group that had lower MC scores.

Comparing and contrasting qualitative differences in quantitative results on the MC, EI and LE measure turned out to be tricky because of sample and evidential problems. I had plenty of data to support plausible interpretations but the evidence did not enable me to make strong claims about the separate or joint impact of MC and EI on LE. I needed a revised approach.

My revised approach, arrived at in consultation with my committee chair, was to explore the cases on a case-by-case basis rather than conducting a comparison between two groups of cases. This kind of qualitative case-study approach can yield interesting cross-case patterns and insights (Miles & Huberman, 1994) that are plausible and potentially educative. This is an explanation building approach (Yin, 2003). It can raise

questions or generate hypotheses (Glaser & Strauss, 2007) about the contributions of MC and EI to LE, but it cannot answer those questions. Such questions must be answered in future research.

The cases studies did provide a lot of good data. I came up with a broad interpretive framework (the 7 blind spots, described below) to make sense of the rich data. This effort yielded plausible interpretations. I caution the reader that these are not conclusive findings. Rather, these results raise questions for future research.

Conditional Leadership Effectiveness

Each of the case-study subjects leads in a unique way, with considerable LE strengths and some weaknesses. The complexities each leader sees or does not see and the emotional aspects of leadership that he or she handles adroitly or fumbles are not the same. What *is* consistent across the 6 cases is that each person's LE is conditional upon context (team, cross-functional team, or organization) and domain (technical, interpersonal, organizational).

For the most part, the leaders are reflective, able to coolly think about leadership challenges as if from a distance and to choose their leadership behavior. However, in certain contexts—different ones for each leader—they tend to take an immersed perspective on leadership challenges. Rather than engaging in the effortful thinking required to plan and execute effective leadership behavior, they **react** hotly or **withdraw** unreflectively in ways that diminish LE.

7 Patterns of Behavior with the Footprints of EI and MC

Moreover, despite differences in the particular contexts in which each leader had diminished LE, I found in the interview data 7 patterns of behavior by the leaders. I call

these behavioral patterns 7 leadership blind spots because they are situations in which the leader is immersed and cannot see how to lead more effectively. Each subject exhibits at least one blind spot, with significant variability in the conditions under which each struggles. Using the acronym BLINDSPOT as a mnemonic device, the patterns of behavior in which LE tends to be diminished are:

Being Forceful
Lacking Visibility
Insecure Authority
Need to be Political
Distance and Decenter
Stop Enabling
Problems **O**n **T**eams

I found dual processing accounts of reasoning and social cognition (Epstein, 1994; Evans & Over, 1996; Kahneman, 2011; Mischel, 2014; Sloman, 1996; K. Stanovich & West, 1997; K. E. Stanovich & West, 2000) helpful in interpreting these blind spots in terms of MC and EI.

Blind spots seemed potentially associated with MC and EI as mediated by two quite different but inextricably linked neural and cognitive systems: a hot limbic system and a cool cognitive system. The hot limbic system is rooted in the ancient fight-or-flight emotional brain (McClure, Laibson, Loewenstein, & Cohen, 2004) and the cool, reflective cognitive system is associated with neural activity in the prefrontal cortex (McClure et al., 2004).

The blind spots seemed to occur when leaders were hot and reactive or anxious and withdrawn. When leaders remained cool and reflective, they did not tend to have difficulties with the blind spots. Insufficient MC and EI seem associated with blind spots

and more complex thinking and EI skills such as self-control seem to help leaders avoid the blind spots. As will be described in Chapter 11, higher MC tends to enable leaders to remain cool and reflective and therefore able to choose effective leadership behavior. Seeing situations as having more parts, a feature of increasing MC, seemed to help leaders use their existing EI skills for self-control, to keep them from becoming reactive. It seemed to work the other way, as well. Strong EI skills seemed to help leaders remain cool in response to stress and able to engage their MC in being reflective. By working both separately and together, MC and EI plausibly helped leaders to be reflective and therefore more effective. However, these are not findings. They are a plausibility story that raises questions that need to be tested through future research

Questions Raised for Future Research

My future research study designs must be capable of allowing me to answer research questions related to the quite general question above. In addition to other naturalistic studies such as the present one, new research designs might take the form of experiments designed to study aspects of EI (e.g. self-control) in which I can study the self-control aspect of EI in leadership, or aspects of MC, and their relationship to LE.

In such experiments, to give the broad strokes, I might have participants engage in a leadership scenario. Then, I could compare treatment groups, who had participated in leadership education interventions such as those just described and control groups who had no such education. Similarly I could conduct pre-tests before educational interventions and posttests after the trainings and developmental work. In later research, I could also imagine trying to model leaders' growth in EI, MC, or both as well as the development of their LE. In such research, I presume my approach would be to make

things tractable by studying particular aspects of EI, such as self-control, and particular aspects of MC, such as the complexity with which participants mentally represent a leadership scenario, and the connection of these variables to LE.

Leadership Education

A potential educational implication of these results is that leaders may be supported in shoring up the growing edge (Garvey Berger, 2012) of their leadership, their blind spots, through developmental learning opportunities (e.g. learning from reflection with a manager, coach, peers, other leaders, self-development activities, and more formal designs for learning such as workshops). Leaders might learn cognitive-behavioral strategies, insight-based strategies and benefit from reflective practices such as journaling and meditation. Such interventions will help leaders to identify the contexts, domains, and stimuli that trigger their hot systems and to develop strategies that will allow them to apply, "…the core strategy for self-control … [that] is to cool the "now" and heat the "later" … push the temptation … far away in space and time, and bring the distant consequences closer in [their] mind[s]" (Mischel, 2014, p. 256). As in the approach developed by Kegan and Lahey and described in *Immunity to Change* (2009), educational interventions that surface blind spots, help leaders to develop goals and methods for overcoming them, and get them to develop in ways that allow them to overcome them and, with practice, to make their ability to act reflective and with LE, an automatically available set of skills.

How this Dissertation is organized

This dissertation is organized into three parts. Part I (Chapters 1-3) presents the theoretical context and methods used in this research. Part II (Chapters 4 – 10) begins with an overview of the 6 case studies in this thesis and continues with a chapter for each case study. Finally, in Part III (Chapters 11 and 12), I present my findings and results and suggest possible educational implications and directions for further research.

In Chapter 2, I present a detailed review of the theoretical context of the study, including consideration of literatures on leadership, MC, and EI. I present a model of leadership on which I based the leadership effectiveness measure used in this study. As well, I explore adult developmental theory by Kegan (1982, 1994) and Fischer (K.W. Fischer & Bidell, 2006) as it relates to my assessment and analysis of MC in the study. I also introduce the work of Kahneman (2011) and Mischel (2014) on dual processing accounts of cognition.

Chapter 3 contains a detailed description of the research methods I used in the study. I describe the methods and measures used to select the 6 case-study subjects; discuss interview methods; present the leadership effectiveness measure that I designed for the study; and address issues of validity, including a discussion of interrater reliability.

Chapter 4 is an overview of the six case studies, including a presentation of each leader's effectiveness scores and their relation to MC and EI.

Chapters 5 through 9 each contain a case study of a different mid-level leader (Sr. Director) at SF Therapeutics. The cases are focused on the separate or joint contributions of their MC and EI abilities on their strengths and areas for improvement as leaders.

Chapter 5 is about LiChong, a Senior Director in Pharmacology. LiChong is a highly effective scientific leader when working with his own team or consulting with others across the organization, but he can be too forceful in multidisciplinary settings.

In Chapter 6, I present the case of Andrea, a leader in Biostatistics. Andrea shows strength in managing her team and in leading initiatives across the R&D organization. However, she can be too enabling of poor performers and strong-willed others.

Chapter 7 is the case of Neil. He leads his pharmacology group with a strong vision and is skilled at cultivating relationships, but he can limit his effectiveness by being too forceful in expressing himself.

Chapter 8 contains the case of Laura. She is an M.D. / Ph.D. and a leader in the Regulatory and Safety area. Laura is a strong individual contributor and can be an effective mentor, but interviewees suggest that she needs to be more active as a leader and to take care not to give in to strong-willed colleagues.

Chapter 9 is the case of Jennifer who is a leader in Clinical Operations. Jennifer is a supportive leader of her long-serving team. She helps her team members to develop and achieve good performance. However, Jennifer could lead more actively on cross-functional teams and with colleagues across the R&D organization.

Chapter 10 concludes the case studies with the Case of Steve, a leader in Regulatory Affairs. Steve is a highly effective leader who is influential on cross-functional teams, leads effectively across his organizational networks, and makes valuable contributions to successful regulatory filings. To become even more effective as a leader Steve could go further in decentering from his own contributions and stepping back in order to make more room for his subordinates to shine.

In Chapter 10, I present my findings and learning from the case studies in response to my research question.

Finally, in Chapter 11, I offer implications on leadership education and future research.

I now turn to the theoretical context in Chapter 2.

2

Theoretical Foundations

Before, during, and after embarking on this study of the relationship between MC, EI, and LE, I referred to the leadership, MC, EI and dual-process-theories-of-mind literatures. This chapter presents a synthesis of the literature I consulted and upon which I attempt to build. I begin, however, by picking up the story of SF Therapeutics from Chapter 1 to provide background on the drug development process[10].

Drug R&D in the Biotechnology Industry

Herbert Boyer's work involved inserting genes from one organism into another organism, recombining their DNA to create a new synthetic molecule. This was very innovative science. His work not only intrigued his fellow scientists at UCSF and beyond, but also caught the attention of a venture capitalist named Robert Swanson. In 1976 Swanson contacted Boyer to say he wanted to start a recombinant DNA company and had some money to do so – he worked at the now-storied venture capital firm Kleiner Perkins. Boyer, a distinguished scientist, had never heard of venture capital, but labs always needed money so he agreed to meet Swanson. They met on a Friday afternoon at 5pm and had a conversation that led to the founding of the pioneering biotech company, Genentech (Boyer, 2015).

Boyer's work was in biochemistry and genetic engineering. Genes are a region of DNA (see Figure 2-1) that carry encoded biological instructions and transmit those instructions from each cell to its offspring. The double-helix shape of DNA can be

[10] Much of this description draws on the work of Gary Pisano in his excellent book for all interested in or working in biotech called *Science Business* (2006).

thought of as a “twisted ladder”. Two nucleotides are the DNA strands that form the “rails” of the ladder and chemical bonds called base pairs are the “rungs” of the ladder. The bases are termed A (for adenine), C (for cytosine), T (for thymine) and G (for guanine). The pairs always consist of A and T or C and G in various sequences. A single strand of DNA is composed of letters such as ATGCTCGAATAAT. The “letters” make words as in ATG CTC GAA and the “words” make “sentences” such as < ATG CTC GAA>. These “sentences” are called genes (Silberstein, 2006).

Boyer and his colleague Stanley Cohen discovered how to combine genes from two organisms. They used enzymes “scissors” to cut ATC and G “letters” and “words” out of a gene in one organism and insert them in a gene of a different organism. By 1977, Genentech successfully used recombinant DNA to produce its first human protein.

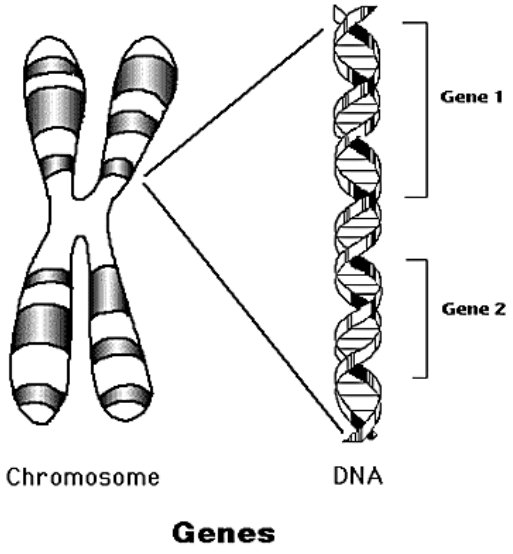

Figure 2-1. Relationship between Genes, DNA, and Chromosomes (Silberstein, 2006)

In 1980, Genentech became the first publicly traded biotech company. In 1982 using the money it raised to continue its first journey through the FDA drug-approval process, Genentech marketed human insulin as its first recombinant DNA drug (licensed it to the pharmaceutical company Eli Lilly and Company.)

The example of Genentech's founding became a biotechnology paradigm. Biotech companies formed to commercialize academic science; rounds of venture capital (VC) funding (e.g. Seed, Series A, Series B), funded early growth of young companies; a public stock offering (IPO), merger or acquisition funded continued drug development; and alliances with pharmaceutical or other biotechnology companies were often formed to fill scientific gaps or to market FDA-approved drugs.

SF Therapeutics followed such a path through the drug R&D process (see Figure 2.2). Bryan, Arthur, and Dan completed the first phase of the drug R&D process--*target identification*--at their UCSF lab. By discovering that over activity of a cell protein called tumor necrosis factor (TNF) played an important role in inflammatory (autoimmune) disorders, such as rheumatoid arthritis, they identified TNF as a target. A target is a receptor, gene, protein, or biochemical pathway that can potentially be "hit" with a molecule, a new drug, to intervene in a disease process.

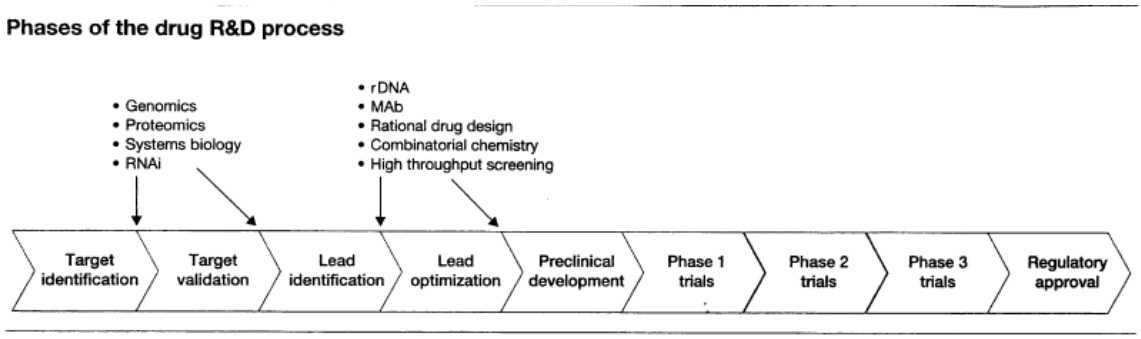

Figure 2-2. Phases of the drug R&D process (Pisano, 2006, p.46)

After moving into their Mission Bay labs and offices, the SF Therapeutics founders assembled a cross-functional drug-program team including Bryan (a molecular biologist), Dan (a cell-biologist), and Arthur (a chemical biologist), as well as a rheumatologist, toxicologist, and biochemist from UCSF Medical Center whom they enticed to work with them.

The new team aimed to *validate* TNF as a drug target. Target validation proceeded slowly because they had a limited number of genetically engineered mice, bred to express different levels of TNF, on which to conduct experiments.

This led SF Therapeutics to seek a joint venture with Nomura Biosciences, the Japanese company that, among other things, could engineer the mice needed. After Bryan succeeded in closing the joint venture deal, target validation proceeded. Armed with mice engineered by Nomura, 6 months of experiments suggested that TNF was a reasonable target – not guaranteed, but promising. Over 5 years had passed since the founders began their research.

Meanwhile, Bryan and the firm's new CFO closed a Series B round of VC financing. Bryan and the VP of HR used the money to hire a computational chemist, an

experienced regulatory executive, and individuals to staff the drug safety, biostatistics, pharmacology, and toxicology departments. The company grew quickly.

Several groups now got involved in *lead identification* and *lead optimization*. Chemists suggested types of molecules that might work, computational chemists modeled molecular structures, and a high throughput-screening group operated by a Contract Research Organization (CRO) synthesized and screened tens of thousands of possible molecules.

After a year of work, a number of promising molecules had been identified. The drug program team, which now included the computational chemist and regulatory executive, worked to optimize the molecules so that they had drug-like properties. This resulted in a candidate molecule (Molecule-25, the 25th version of a new molecule) that was not known to have a toxicity problem or have been patented by anyone. Still, there was only a 1-in-5000 chance that this molecule would prove safe and effective as a drug.

As SF Therapeutics moved into *pre-clinical development*, the board hired a team of seasoned biotechnology executives: a new CEO, CFO, COO, General Counsel, EVP of HR, and Chief Medical Officer. Dan continued to lead R&D as Chief Scientific Officer. Bryan stepped out of operations and used his scientific and business skills (that were now sophisticated) to focus on mergers, acquisitions, and licensing deals. Arthur retired from the company but remained a board member and scientific advisor.

Pre-clinical development took about a year and involved testing the safety and potential effectiveness of SF Therapeutics' New Molecular Entity (NME).
SF Therapeutics put Molecule-25 through an array of experiments in the laboratory. First Molecule-25 was tested on cells. Then it was injected into mice bred to have autoimmune

disorders to see whether it reduced inflammation and whether it had toxic side effects such as liver damage. As in the monoclonal antibodies taken today by many cancer patients, biotech drugs are injected (intravenously, intramuscularly, or subcutaneously) because they are large molecules such as proteins. In contrast, pharmaceutical medications, as in acetylsalicylic acid (ASA), consist of more easily absorbed small molecules, and are taken orally.

The researchers also used animal studies to learn about the absorption, distribution, metabolism, and excretion rates (ADME studies) of Molecule-25. Derivative compounds, Molecule-26, Molecule-27, etc., were developed to make the potential new drug safer or more effective. A great many projects are killed at this point due to corporate cost cutting or strategy change, such as choosing to focus on other molecules.

But, SF Therapeutics' experimental data for its molecule, now Molecule-30, suggested that it really was a 1-in-5000 winner. These exciting results enabled SF Therapeutics to take two big steps in its evolution. First, it filed an Investigational New Drug (IND) application with the US FDA to get permission for Molecule-30 or its derivatives to move beyond animal testing into human trials. Second, it took advantage of favorable stock market conditions and went public. Its over-subscribed IPO filled the company's coffers with the hundreds of millions of dollars it would need to get through Phase 1, 2, and 3 clinical trials.

Phase 1, 2, and 3 Clinical Trials

Clinical trials involve cross-functional project teams drawing from a broad array of functions (e.g. clinical operations, statistics, drug safety, pharmacology, toxicology,

medical writing, regulatory) and disciplines (e.g. medicine, data management, biostatistics, chemistry, biology, regulatory).

Phase 1 trials test a drug's safety in a small sample of normally between ten and one hundred healthy volunteers. For life-threatening diseases, Phase 1 trials can be done on patients with the disease (e.g. cancer). The Phase 1 trial for Molecule-30 took a year and costs $10 million. The company's submissions to the FDA demonstrated that Molecule-32 was safe and the regulators approved *Phase 2* trials.

Phase 2 trials examine the safety and effectiveness of the drug in different doses targeted at the patient population. These studies are slightly larger (normally between 50 and 500 patients). In SF Therapeutics' trials, the treatment groups received one of five different daily doses of Molecule 32 (10 mg, 25 mg, 50 mg, 75 mg, and 100 mg) and the control groups received a placebo. By now, SF Therapeutics had staffed commercial and manufacturing divisions, which began working with the R&D divisions. The 50 mg and 75 mg doses had good efficacy, few side effects, and no adverse events.

The medical group preferred the 75 mg does because it was much more effective. But high manufacturing cost-estimates for manufacturing the 75 mg dose worried the marketing team. Molecule-32 was a complex molecule that required fifteen synthetic steps to manufacture. A less costly competing product might have gained approval within a year and it would make the 75 mg dose of Molecule-32 look too expensive for it to compete.

The R&D and manufacturing teams worked together to find a lower cost way of making the 75mg dose. Then a second set of clinical trials, Phase 2B, was run for the re-formulated Molecule-33. In total the Phase 2 trials cost $40 million and took two years.

The reformulated 75 mg worked well and, as reported in the FDA filing, had a good safety record. The FDA gave permission to SF Therapeutics to proceed to Phase 3 trials with Molecule-33, now trade-named Rumotak.

Phase 3 trials aim to confirm the efficacy and safety of the drug in a larger patient group, normally from hundreds to tens of thousands of individuals at multiple clinical trial sites. Patients are usually followed for longer periods to confirm long-term efficacy and watch for long-term side effects. Phase 3 studies can cost from $50 to $500 million and take 4 years.

SF Therapeutics reported the results of the Phase 3 trials for Rumotak to the US FDA, Health Canada, European Medicines Agency, and regulatory agencies throughout Asia. The final FDA review process took 15 months. The regulators asked for clarification on several Rumotak studies. In its final approval to market Rumotak, the FDA, and other regulatory agencies, specified the claims that SF Therapeutics could and could not make in its marketing of the drug and instructed the company on the information it had to put on the label of the medication.

However, the Rumotaks of the world are quite rare. Most drugs never make it to human trials and those that do often do not make it to market.

The story of SF Therapeutics and Rumotak's journey from the lab to the market shows that advancing a molecule toward FDA approval requires leaders to lead their own teams and to lead on various cross-functional teams.

Why Biotech is an Exemplary Archetype of 21st-Century Leadership

The complex nature of human biology and the limited understanding of disease make biotech leadership especially complex and uncertain. Other kinds of R&D, such as

computer chip development, are also complex, but there are fewer unknowns. Computer chip designers and engineers know how the new chip will fit into hardware and software platforms. Even if, like Apple, they design those platforms, they create or adhere to agreed-upon and (patent) filed or published standards. Not so for human biology and disease. There are many ways a new molecule (drug) can fail that remain unknown until tested. For example: a new molecule may fail to hit the intended "target"; it may hit the target but not play the biological role it was thought to play; it may hit the target, play the expected biological role, but cause unexpected and dangerous side effects (Pisano, p. 44).

In addition to greater uncertainty, another way in which leading in Biotech R&D differs from leading in other kinds of R&D is the way the product is used. Drugs have the potential to alleviate suffering and sometimes save human lives, but they also have the ability to cause harm and sometimes death. The potential of drugs to help inspires people who work in biotech. The potential for harm means that biotech leaders must constantly strive for a balance between efficacy and safety. This can make for difficult and sometimes ethically challenging judgments at every step of the R&D process.

Another feature of biotech R&D leadership that makes it an archetype of 21st-Century leadership is the need for multidisciplinary and cross-functional cooperation and integration. This creates a so-called matrix environment where leaders must function both up and down their functional line and also across functions. A persistent challenge of working on cross-functional program teams in this matrix is that mid-level and senior leaders must lead others over whom they have no positional authority and where accountability is weak or murky.

To make things even more difficult, people from different backgrounds don't necessarily understand or value the importance of others' functional area or discipline. Take the example of a drug program team consisting of a chemist, a physician, a statistician, and a regulatory affairs leader. The chemist might have safety concerns that a physician may not truly understand or think important. The physician may have efficacy or safety concerns that are very different from those of the chemist. The statistician may have study-design concerns relating to safety that neither the physician nor the chemist fully understand or appreciate. A regulatory affairs leader may have concerns about how study results will be perceived by regulators that may seem unimportant or irrational to the chemist and statistician. These kinds of potential quagmires are common and require that mid-level biotech leaders try to strike a balance on cross-functional teams between exerting their power as experts and meeting the needs and interests of others who may be trying to exert *their* expert power. Without organizational authority, leaders can only be effective if they find ways to influence others who care about different things. But, what is leadership and leadership effectiveness?

What is Leadership?

Both the popular and the social scientific literatures on leadership are so vast that, when writing about leadership, it is helpful to put one's views about the essential nature of leadership on the table. My working definition of leadership is based on over 20 years of business experience (as an entrepreneur, consultant, and investor in a family office) and on the leadership literature.

In my view, Linda Hill of Harvard Business School and her collaborator Kent Lineback have developed a fairly good one-line statement about leadership. " Leadership

is using yourself as an instrument to get things done in the organization…" (2011, p. 127). I also think a fuller definition of leadership, particularly in complex, turbulent, fast changing, and uncertain 21st-Century leadership contexts, ought to include the idea of leading change. To incorporate the importance of change, I combine Heifetz's idea of mobilizing adaptive work (1994); Gardner's idea that a leader's task is to change the thoughts, feelings and behaviors of others (1995); and Mischel's empirically-based conclusion that, "…by changing how others think, we can change what we feel do and become" (2014, pp. 278-279).

Thus, my working definition of leadership is: *Leadership* is using yourself as a tool to mobilize adaptive work in order to get things done in your field of action by changing how you and your followers think, feel, do, and become. This definition serves the practical purpose of making the study of leadership effectiveness in this research tractable. It is important to note that there is no one definition of leadership in any leadership moment. At any given time an individual leader may lead in various different ways depending on the context and situation. Further, those ways of leading can change over time as the leadership context (e.g. stage in the organization's lifecycle or changes in the environment such as economic, competitive, or regulatory) or the leader herself changes. As well, though not studied here, different people may lead differently to get similar results based on demographic variables such as gender, race, and ethnicity. The prodigious number of permutations and combinations of potentially effective leadership styles are reflected in the vastness and lack of consensus in the leadership literature.

Leadership Effectiveness – Traits, Behaviors, and Contingencies

Since the 1930's the social scientific literature on leadership has struggled to describe what makes for effective leadership (House & Aditya, 1997). The systematic scholarly study of leadership has evolved into a massive, rapidly growing, "…fragmented and contradictory "(Chemers, 1997) literature. Perhaps this lack of consensus reflects the ineffable nature of leadership. As the preeminent leadership scholar, Warren Bennis, put it:

> The study of leadership isn't as exact as, say, the study of chemistry. For one thing, the social world isn't nearly as orderly as the physical world, nor is it as susceptible to rules. For another, people… are anything but uniform and anything but predictable…. To an extent, leadership is like beauty: It's hard to define, but you know it when you see it. (1994)

It may be unsurprising, then, that a proliferation of theories with disparate concepts and terms has populated the leadership literature (G Yukl, 2006, p. 423). No one theory has been endorsed by a majority of scholars or practicing leaders.

There has, however, also been a reasonable amount of cumulative learning (Bass, 1990; Chemers, 1997; House & Aditya, 1997). Ironically, much of this learning has been built on the foundation of the earliest approaches, which focused on leadership traits, leadership behaviors, and the contingencies of various leadership situations (Chemers, 1997; House & Aditya, 1997; G Yukl, 2006). The trait, behavioral, contingency approaches had early difficulties, which led researchers to try other approaches. But researchers have continually returned to these approaches, as well.

The Enduring Contributions of Trait, Behavioral, and Contingency Approaches

Early research in leadership, between 1930 and 1950, focused on leadership traits. Researchers looked for the "individual characteristics that universally differentiate leaders from non-leaders" (House & Aditya, 1997, p.410). Researchers looked at a wide variety of traits that they thought might connect to leadership effectiveness, including physical attributes (height, weight, physique, energy, health, appearance), communication (fluency, talkativeness), intellectual traits (intelligence, scholarship, knowledge, insight, originality), personality (introversion-extroversion, dominance, self-confidence), emotional control (self-control, excitability, anger), and sociability (social skills, social mobility, tact, popularity, cooperation) (Bass, 1990). An influential review of trait research by Ralph Stogdill (1948) concluded that scholars had not identified universal traits of effective leaders and that the field had to turn to different approaches.

However, Stogdill and many others began to reconsider the value of the trait approach by the 1970's. Stogdill (1974) looked at the early research again and found that when studies of children and adolescents were removed certain traits seemed to be associated with leadership effectiveness:

> Stogdill found that surgency (i.e., dominance, assertiveness, energy or activity level, speech fluency, sociability, and social participation), emotional stability (i.e. adjustment, emotional balance, independence, and self-confidence), conscientiousness (i.e. responsibility, achievement, initiative, personal integrity and ethical conduct), and agreeableness (i.e. friendliness, social nearness, and support) were positively related to rated effectiveness. (Hogan, Curphy, & Hogan, 1994, p. 498)

Hogan et al. argue that these four dimensions of personality--surgency, emotional stability, conscientiousness, and agreeableness--have consistently been correlated with

ratings of leadership effectiveness in various lines of leadership research (e.g., Bentz, 1990; Bray & Howard, 1983).

A number of other researchers came to similar conclusions (e.g., Lord, DeVader, & Alliger, 1986) and used five-factor models of personality (e.g., Goldberg, 1993; McCrae & Costa, 1987) as a framework for studying leadership. Proponents of five-factor models claim that all of personality can be described through five traits (derived through factor analysis), which include *Neuroticism* (emotional stability), *Extraversion*, *Openness to Experience*, *Agreeableness*, and *Conscientiousness*.

For example, Judge et al. (2002) used a five-factor model as an organizing framework for their review of leadership research using the trait perspective. Their meta-analysis of 60 leadership studies found overall correlations between ratings of leadership effectiveness and the five personality factors. Overall, perceptions of leadership effectiveness correlated with perceptions of leaders as somewhat non-neurotic, extraverted, open, agreeable, and conscientious (Neuroticism = -.24, Extraversion = .31, Openness to Experience = .24, Agreeableness = .08, and Conscientiousness = .28). The use of five-factor models led to renewed interest in the leader trait approach (Timothy A Judge, Piccolo, & Kosalka, 2009).

The present study does not explicitly take a trait perspective. For one thing, I do not view MC and EI as traits but as abilities that, "like any ability, can be used or not used depending primarily on the motivation to use it" (Mischel, 2014, p.189). For another, the idea of a trait as something that is stable over time and from one context, domain, or situation to another runs counter to an abundance of neuroscience and psychology research that has been conducted in recent years. Walter Mischel (2014)

vividly describes some of this work, important pieces of which he and his colleagues have done.

The behavioral paradigm of leadership supplanted the early trait paradigm in the 1950's and 60's. Leadership researchers working in the early behavioral school searched for patterns of behavior in which effective leaders engaged. The most influential work using the behavioral approach came out of Ohio State, The University of Michigan, and Harvard. Using different methods and different language, each of these groups found that leadership outcomes depended on two distinct patterns of behavior: task-oriented behaviors (directed toward accomplishing tasks) and person-oriented behaviors (directed toward maintaining positive relationships).

Researchers at Ohio State (Stogdill & Coons, 1957) called these two patterns of behavior *initiation of structure* and *consideration*. Initiation of structure referred to organizing group activities, defining relationships, and directing followers toward accomplishing tasks (Chemers, 1997). Consideration included behaviors such as open communication, follower participation in decision making, and interpersonal warmth (Chemers, 1997).

At Michigan, Katz and Kahn (Kahn & D, 1953) labeled these two general styles being *production-oriented* or *employee-oriented.* The former focused on planning, direction, and productivity while the latter aimed for an openness and acceptance, good rapport, and concern for others' feelings (Chemers, 1997).

At Harvard, based on studies of students in leaderless discussion groups, researchers labeled leaders with these two orientations as *task-specialists* or *socio-emotional specialists* (Chemers, 1997 reporting on work of Bales & Slater, 1955). The

distinction between these two leadership styles has endured in the leadership field (e.g. Kaplan & Kaiser, 2001).

Contingency theories enjoyed widespread use in the 1970's and 1980's. Researchers began to look at contingencies and situational factors in leadership with a focus on the fit between a leader's traits, skills, and abilities and the contingencies or demands of the leader's contexts and particular situations (Bass, 1990; Chemers, 1997; House & Aditya, 1997). These theories tended to be more complex, as they tried to account for many different contingencies that explained how leaders behaved in different situations.

Fiedler's Contingency Theory (F. E. Fiedler, 1967) was the first entrant in this new class of theory. He posited different situational factors that affected whether leader behaviors (either task-oriented or relationship-oriented) would be effective. This work met with partial empirical support. House's Path-Goal Theory (1971) looked at a number of situational moderators that might impact whether task- and person-oriented leadership styles would produce hoped-for outcomes. Here, too, results were mixed. Many other contingency theories followed. Vroom and Yetton's (1973) situational theory of leadership provided detailed prescriptions for how leaders should behave in different situations. And, Hersey and Blanchard's (1982) situational leadership theory posited that different leadership styles fit different phases in the life cycle of a relationship between leader and follower.

Interest in the contingency approach eventually waned, but it made an enduring contribution by leading to better theories that integrated aspects of a leader's environment (House & Aditya, 1997). For example, Cognitive Resource Theory (F. Fiedler & Garcia,

1987) focused in part on correlations between a leader's intelligence and effectiveness but also took situational factors into account. One finding using this theory was that under conditions of low stress, intelligence is highly correlated with leadership performance. However, under conditions of high stress, there was an inverse relationship between intelligence and performance while more experience correlated with better performance (F. Fiedler, 1995).

In the 1980's, 1990's and beyond, contingencies, leader traits, and leader behaviors were integrated to some degree. The influence of early theories can be detected in many of the major approaches to leadership research that followed them: transactional and exchange theories (e.g. Dansereau, 1995; Graen & Uhl-Bien, 1995) looked at interactions between leaders and followers; approaches based on leader motivations (e.g. McClelland, 1985); power, and influence (e.g. Gary Yukl & Tracey, 1992); charismatic and transformational leadership (e.g. Bass, 1985, 1990; Conger & Kanungo, 1987; Shamir, House, & Arthur, 1993); cognitive approaches to leadership such as those which looked at perceptions of leadership or information processing, and implicit theories of leadership (Hall & Lord, 1995); the romance of leadership (the belief by followers that leadership makes a difference when it may not) (Meindl, 1995); shared leadership (Pearce & Conger, 2003); and theories that attempt to integrate multiple approaches (e.g., Hooijberg, Hunt, & Dodge, 1997; Kim & Yukl, 1995).

A Model for Leadership in an Age of Uncertainty

I created a leadership effectiveness measure (described in Chapter 3) grounded in the leadership literature as just summarized. The measure is based on a leadership framework, called "Leadership in an Age of Uncertainty"(2005), which integrates prior

leadership theories, including trait, behavioral, and contingency approaches, and that focuses on what leaders actually do. This framework (visually represented as a compass in Figure 2-3) was developed by MIT business faculty Deborah Ancona, Wanda Orlikowski, Peter Senge, and Tom Malone.

I chose this as a model on which to base my leadership effectiveness measure for three reasons. First, the assumptions underlying this framework fit my working definition of leadership, stated above.

Second, the framework integrates and builds upon theories and empirical findings from the leadership literature.

Third, the framework is well suited to activities of mid-level biotech leaders.

Figure 2-3 – Leadership in an Age of Uncertainty is a framework that was developed by MIT business faculty including Deborah Ancona, Wanda Orlikowski, Peter Senge, and Tom Malone, (2005). It integrates prior leadership theories and focuses on what leaders do.

The framework is based on four assumptions. The first assumption is that leadership is distributed. In today's organizational environment, people are called upon to lead from wherever they sit (Senge, 1990). As with the leaders in the present study,

leaders in organizations often work in teams where different team members are called upon to share the task of leadership (Pearce & Conger, 2003).

A second assumption of the leadership framework, aligned with my choice of MC and EI as variables to study, is that leadership is developmental and personal.

A third assumption of the framework, which fits my working definition of leadership, is that leadership is a process to create change.

The fourth and final core assumption of the framework is that leadership develops over time. Leaders get better at leadership through learning from experience, reflection, practice, and learning from others. Whether a leader begins with more or less leadership ability, all leaders can get better through learning.

The framework organizes leadership activity into four interrelated and continually employed processes represented as points on a compass (See Figure 2.3): *Sensemaking*, *Relating*, *Visioning*, and *Inventing*.

Sensemaking is a term coined by Weick (1995) to describe the process by which leaders and followers, individually and/or socially, or whole organizations make sense of the world around them. They discover new terrain as they are inventing it and map that new terrain as they are creating it.[11] These "maps" are communicated in words (Karl E. Weick, Sutcliffe, & Obstfeld, 2005) and serve as a springboard to action. Effective leaders describe these maps using metaphors and stories, ensure that the maps are dynamic so that they can be updated to respond to changes in the environment, and involve others in the process.

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[11] This is a simplified description of sensemaking, which Weick (1995) describes as having seven properties, each of which is complex.

Through *Visioning* a leader can move others from *Sensemaking's* map of current reality to an exciting and inspiring vision of the future. Effective leaders communicate a clear and compelling vision and often try to bring their vision alive for followers by using metaphors, stories, and analogies. They work to help followers to share their understanding of the vision and to commit to it. They empower others to believe that they can use their skills and abilities to achieve the vision. And, they embody the core values and ideas contained in the vision (Ancona et al., 2005).

Inventing consists of creating the necessary processes, structures, and actions needed to transform a vision into reality. Effective leaders work to implement a vision by challenging existing processes; driving innovation; organizing work in new and different ways to improve the way things get done; leading change; delegating and empowering others to act; and securing necessary resources.

Relating, here, consists of three activities: *Inquiry*, *Advocacy*, and *Connecting*. *Inquiry* and *Advocacy* are terms introduced into the leadership literature by Chris Argyris and Donald Schön (Argyris & Schön, 1996). *Inquiry* refers to:

> …The ability to listen and understand what others are thinking and feeling…trying to understand how the other person has moved from data to interpretation to assessment, rather than simply reacting to the assessment itself. It requires the leader to suspend judgment and to listen without imposing his or her point of view. (Ancona et al., 2005)

In contrast, Advocacy refers to the ability to take a stand and to try to influence others while also being open to other views. It also means taking responsibility for one's own biases and having the ability to see when one overreached based on insufficient data.

Connecting refers to the ability to build bonds with others, build trust, and establish effective collaborative relationships.

Finally, *Change Signature* refers to the signature behavior a person exhibits when leading change--her particular approach to *Sensemaking*, *Visioning*, *Inventing*, and *Relating*. Different leaders may have different change signatures depending on factors such as personality, skill sets, values, preferences, assumptions, and so on. A change signature need not be, and likely rarely is, stable across time. As the leader learns from experience and potentially develops as a person and a leader, she may adopt a different signature style or set of signature styles to leading change. An increase in MC, for instance, may, over time, lead to change leadership that is more inclusive of diverse perspectives, and more open to contradiction, feedback, and personal transformation.

By considering leadership as a set of four interrelated activities that can be carried out in very different ways (depending on a person's change signature), this framework proved to be a very useful model on which to base my leadership effectiveness measure.

The framework's elements • to some degree with MC and EI, but are also distinct from them. *Relating* is influenced by MC and EI, but cannot be reduced to either one. Weick's *sensemaking* is related to but different from Kegan and Fischer's *meaning making*. Both terms refer to the way we construct meaning--the narratives and mental representations we adopt to understand what things mean. However, Weick's *sensemaking* refers to the particular meaning described above that is primarily used in the organizational behavior literature--especially in Weick's own work (e.g. 1993, 1995, 2001; 2011; 2005). To avoid confusion, even though meaning-making and sensemaking can be synonymous, I will reserve the term sensemaking to refer to Weick's definition of the term and use meaning making when referring to Kegan and Fischer's theories, to which I now turn.

Kegan's Subject-Object Theory of Development

In Kegan's five-stage theory of mental development (Kegan, 1982, 1994) the third, fourth and fifth stages are associated with adulthood. Like Erikson (1980), Levinson (1978), and now many other developmental psychologists (see Damon & Lerner, 2006; Hoare, 2006), Kegan was an early proponent of the idea that psychological development can continue throughout the lifespan. The mind often continues to grow in complexity even after the body has largely matured. Supporting Kegan's view, neuroscience researchers now know that learning and development are accompanied by changes in the adult brain (2013). (It turns out the adult brain is far more plastic than previously believed.)

In Kegan's theory a person at the third order has a *Socialized Mind* suitable for the demands of a traditional culture; someone at the fourth order has a *Self-Authoring Mind* fitting the mental demands of modernity; and an individual at the fifth order has a *Self-Transforming Mind* functional for post-modern environments. Kegan's orders of consciousness are, in his scheme, the psychological structure on which a person's meaning making or epistemology is built.

Kegan's theory is called Subject-Object because each stage represents a potential era of relative stability in the self's[12] evolving quest to construct an epistemological balance between what is identified with as subject and what is related to as object. We are subject to that which we cannot consciously step back from, reflect on, or take responsibility for. When our thoughts, feelings, and behaviors are subject for us they can

[12] All references to self and ego, in keeping with Kegan's constructive-developmental self-psychology, refer to the evolving psychological processes and meaning-making structures through which we organize and interpret our cognitive, intrapersonal, and interpersonal experiences.

be like a driver's blind spot; there is a potential danger in an area we can't see unless we are able to shift our attention away from our current view, look at it and realize that we must take responsibility for what is there, changing our thoughts, feelings, and behavior accordingly. Like a loyal employee devoted to fulfilling all that a revered boss seems to require, we are *had* by and identified with that to which we are *subject*. The self-immersed part of our perception and representation of the world is the *subject* part of our epistemological balance. We represent things that are *object* for us from a distanced perspective. We can consciously step back from, *have*, reflect on, and take responsibility for that which we relate to as *object*. An employee who thinks critically about the demands of a boss and chooses how he responds to these directives relates to this aspect of the boss' leadership behavior as object.

According to Kegan, each Subject-Object balance is constructed through an underlying organizing principal or psychological structure. The complexity of this structure in any era of our development is our level of MC. Psychological structure becomes more complex as one develops. As illustrated in the far right column of Figure 2-4, the third order is based on a cross-categorical structure; the fourth order subordinates the cross-categorical structure to a system structure; and the fifth order subordinates the system structure to a trans-system structure. In alignment with Piaget's (1954) cognitive-developmental logic, evolution from one order of consciousness to another follows a rhythm. The general shape of this developmental pattern is that the balance of a less complex organizing principal gets disturbed and then the person re-equilibrates by constructing a hard-won new organizing principal that is adaptive to one's emerging awareness of greater complexity. According to this logic, and illustrated in Figure 2-4,

each of Kegan's successive orders subordinates and integrates, transcends and includes, the principles of the former orders, resulting in increased MC.

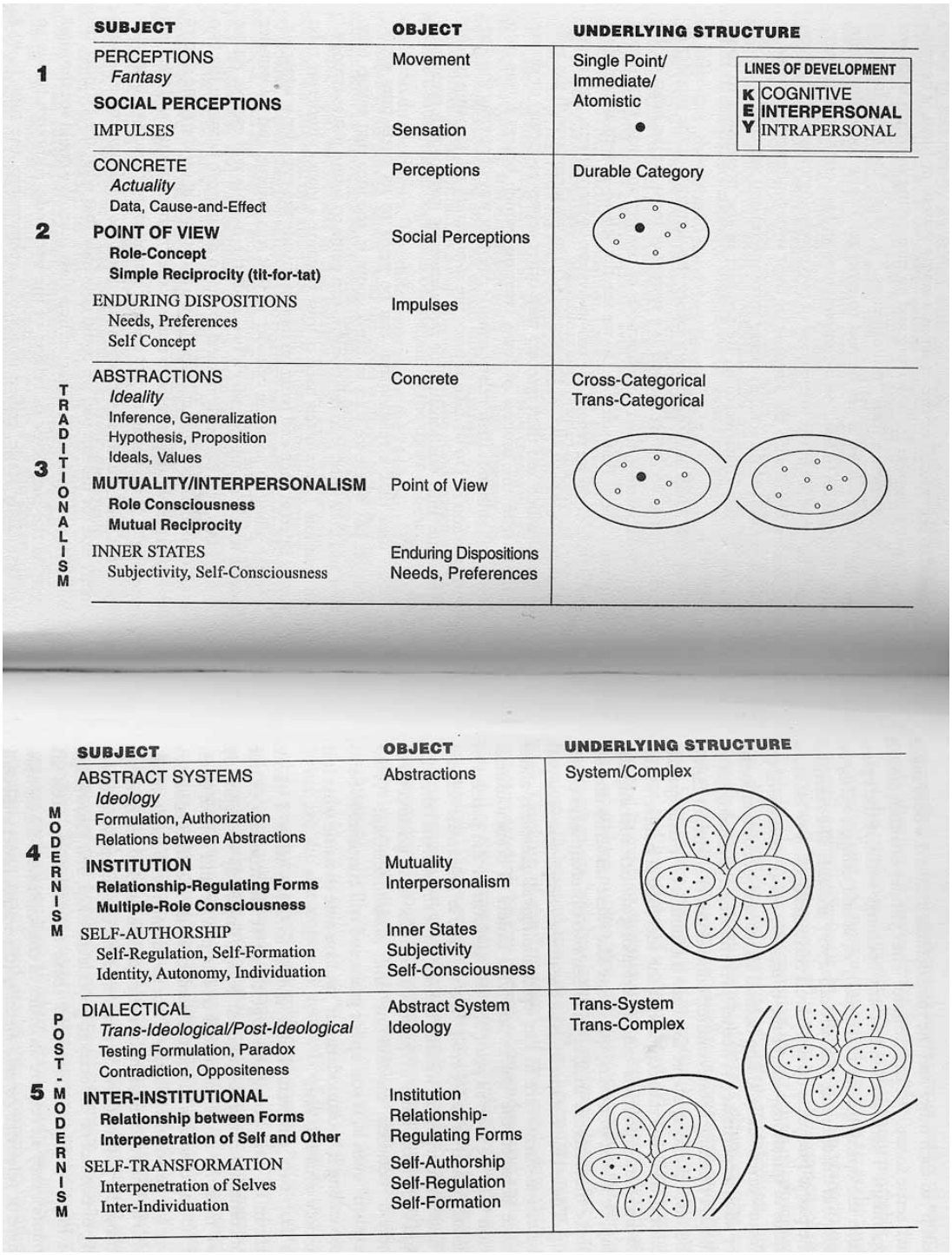

Figure 2-4. Kegan's Five Orders of Consciousness (Kegan, 1994, pp. 314-15).

In the tradition of Kohlberg (1969), Perry (1970), and others, Kegan extends Piaget's cognitive-developmental approach to include intrapersonal and interpersonal lines of development. Evolving to the third, fourth, and fifth[13] orders of consciousness represents a triumph[14] over the previous order and a limit in terms of the next.

The **Socialized Mind – Kegan's Third Order**

The triumph of the third order is that the underlying cross-categorical way of knowing enables abstract thought (cognitive), mutuality (interpersonal), and the ability to reflect on the self's needs rather than being had by them (intrapersonal). A person at the third order or socialized mind is, for example, able to perform abstract reasoning about the world of concrete phenomena, can more fully consider the needs of others, and has the capacity for self-consciousness. Kegan makes a culture-as-school analogy in noting that his third, fourth, and fifth orders of consciousness fit the complexity of mind demanded by the "hidden curriculum" of traditional, modern, and post-modern societies respectively. The third order is adaptive in a traditional society, such as sixteenth century Europe, where an individual's survival and success depended in large measure on meeting the homogeneous demands of authorities including people (parents, teachers, landowners, clergy) and institutions (family, school, organizations, religious groups). Such traditionalism certainly exists within modern societies as in traditional hierarchal organizations or traditional religious communities. However, this socialized mind is not

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[13] Suzanne Cooke-Greuter and others (S. R. Cook-Greuter, 1999) have articulated ego stages beyond Kegan's fifth.

[14] The triumph is the achievement of greater complexity of mind that enables one to adapt to more complex mental demands. Triumph does not imply being a "better" or more worthy person in any intellectual, social, or moral sense.

adaptive in a modern society for adults (or in many modern organizations) where citizens (leaders) are expected to invent, reflect on, regulate, and take responsibilities for multiple social roles independent of various competing and contradictory forces which might otherwise shape them. These self-authoring abilities are the triumph of the fourth order.

The **Self-Authoring Mind – Kegan's Fourth Order**

The triumph of the fourth order is that one is able to cease being *written upon* by important other people (parents, teachers, bosses, clergy), institutions (family, school, organization, religious groups), and cultures (communal, organizational, societal). People at the fourth order have the complexity of mind to meet the demands of modernity for self-authorship. According to Kegan, for example, both marriage and management literatures expect people to invent, take responsibility for, distinguish between, and regulate their multiple roles. Spouses and workers are supposed to invent themselves as self-authorized franchises with values, boundaries, identity, projects, and plans managed independently of their jobs, roles, partnerships, families, and organizations. Adults are expected to relate to family, organizational, relational, and multiple cultural systems as object rather being had by them.

This contrasts with individuals at the third order, who will feel conflicted between their own interests and the interests of bosses and spouses. One with fourth-order complexity, for example, is able to pursue new interests or make personal decisions even without the endorsement of a spouse or boss. Such people have the ability to license themselves to spend time on a new hobby, even if a spouse won't come along, or set a new career direction, even if not supported by a boss. This self-licensing ability does not imply that people at the fourth order insensitively ignore, disrespect, or fail to be open to

the influence of others' views, but, unlike people at the third order, those at the fourth order will not feel personally torn by a sense that they have come to a view or decision which conflicts with the views of important others.

However, the self-authored ideology of the fourth order is also a limit. People with fourth-order consciousness are unable to see beyond the limits of their ideologies, to see their own personal authority, personal code or belief system as partial or incomplete. The fourth-order mindset attempts to fit experience and other belief systems to its ideology or belief system. One at the fourth order does not have a sufficiently complex psychological structure to see the subtle logic in paradox; to be friendly to contradiction and opposites; to step back from one's own epistemology and recognize that it is partial or incomplete; and to hold on to multiple systems in dialectical tension. He or she does not tend to recognize the ways in which people in a dispute can both be the "wronged" and the one at fault, or the potential value in holding one's ideals in growth promoting tension with the real (rather than feeling a need to resolve tension in favor of ideological certainty).

The **Self-Transforming Mind – Kegan's Fifth Order**

A triumph of the fifth order is that people with this quality of MC are able to see, reflect on, take responsibility for, and therefore learn from the partiality of their own self-authored ideologies; they can subordinate their own incomplete perspectives to a dialectical relationship with other partial perspectives in order to bring a more complex, and potentially self-transforming, construction of reality into being. As in the supple thesis-antithesis-synthesis progression of Hegel's philosophical dialectic (Hegel, Miller, & Findlay, 1977), one at the fifth order is able to take an open and philosophical stance

toward truth, seeing in apparent opposites (thesis and antithesis) the seeds of a new synthesis, which in turn becomes a new thesis upon which the dialectic moves forward again. Kegan's fifth order of consciousness does not describe the meaning making of *formal* philosophers per se, but rather describes the kind of natural philosophy of the self-transforming mind. As Basseches (1984) demonstrated in his study of interviews with those who possessed this MC, dialectical ways of knowing include being oriented to the relationship between systems, regarding motion, process and change rather than the behavior of important other people and entities as the main feature of reality, and being oriented to the dynamism and tension between systems rather than being focused on one or another system[15]. In contrast to the limits of the fourth-order way of knowing, one who constructs reality with the MC described by Kegan's fifth order is able to, "…reflect on one's basic premises and pursue evidence of their limitations, to be somehow qualitatively less defensive in relation to others, to recognize and tolerate paradox and contradiction, [and] to sustain genuinely intimate interpersonal relations" (Souvaine et al., 1990, p.237). Since one with this level of MC is not identified with a fixed ideology, being close with others does not present a threat to the self. Intimacy is therefore less prone to the ups and downs of third-order mutuality, or the potentially clash-prone ideologies of fourth-order self-authorship. At this stage people may be able to achieve the deep and more complex mutuality of partnerships that can be fruitfully sustained through and strengthened by all manner of difficulties. For example, one can imagine a deep mutuality between U.N. diplomats representing rival nations. The two individuals might maintain mutual respect and hold each other in high regard across years of conflict

[15] (e.g. Alexander & Langer, 1990)

between their nations and be capable of working closely and enjoyably together when the political opportunity presents itself. The fifth order of consciousness is paradoxically a bigger ground than a principle of self-organization; it is a ground upon which different principles of organization may co-determine each other.

As described above, the biotech R&D leaders in the present study work in a post-modern or fifth-order-like leadership context. Each leader is required to mobilize people from diverse professional (and perhaps cultural) backgrounds to co-invent solutions to the scientific, economic, competitive, and regulatory challenges of developing drugs. However, research suggests that the fifth-order complexity of mind demanded of biotech leaders is possessed by no more than seven percent of even well educated and well-off adults in the West (Kegan, 1994; Kegan & Miller, 2003; Torbert & Cook-Greuter, 2004). Rooke and Torbert have found that the fifth order is highly desirable for executives operating in a post-industrial, post-modern mode (Rooke & Torbert, 2005). They discovered that fifth-order executives were better able to transform themselves and their organizations.

Transformations of Consciousness

A move from one order of consciousness to the next results in a shift of Subject-Object balance characterized by the emergence and consolidation of an individual's ability to see, reflect on, and take responsibility for the context with which that person was previously identified and fused. Transformations of consciousness are usually long and painful processes because the act of moving what was subject over to object requires a profound, initially disorienting, loss of one's former view of the nature of reality, including one's sense of what seemed important and true. In a sense one must die to

one's former self in order to be born to a new, transformed self. Transformational learning in adulthood is often triggered by a disorienting dilemma that brings a person up against the insufficiency of her mental models for grasping a more complex reality. Rooted in Piaget's principles of child development, Kegan holds that at any age, disorienting dilemmas are disorienting because an individual has not yet developed a psychological structure that is sufficiently complex for mentally representing stimuli--such as events and her own or others' thoughts, feelings, and behaviors.

In Kegan's theory there are four intermediate steps[16] between any two orders of consciousness. Among 22 adults that Kegan and associates followed in a longitudinal study, all but 3 people took at least a year to increase one intermediate step.

Kegan addresses the question of whether people tend to use the same order of consciousness across the different domains of their living or within the same domain all the time (Kegan, 1994). Do we use one epistemological structure at work and another at home? Do we use our most complex order of consciousness at work when performing at our peak, but regress to a less complex order of consciousness if we become overwhelmed by workload, upset, or stress? In relation to the present study, do biotech R&D leaders employ one developmental position in the domain of their scientific discipline and a different position in the interpersonal domain? Kegan's theoretical stance on such questions is to hold a *consistency hypothesis.* He hypothesizes that a person seeks consistency across domains[17] and within domains. He does acknowledge that variation of

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[16] For instance, between 3 and 4 there is 3 (4) (mostly 3 with 4 emerging), 3/4 (combination of 3 and 4, but 3 dominant), 4/3 (combination of 4 and 3, but 4 dominant), 4(3) (mostly 4 with traces of 3 remaining).

[17] Lisa Lahey's found that 11 men and 11 women showed evidence of the same ego stage when reflecting on work life and home life (Lahey, 1986).

developmental stage occurs, but such variation is not without psychic costs. When individuals use less complex meaning making than they are capable of using they do not like the way they feel. It is the person's more complex way of knowing that finds the less complex way of knowing dystonic with his ego. For instance, a person may experience *temporary regression* to using a less complex stage in response to stress, such as having one's buttons pushed at work, yet feel pained to lose hold of their more complex organizing principle, which is still present. Or, a leader who has moved from an executive leadership role to a mid-level leadership role in a new company may fall into exercising a less complex epistemology as an adaptation to the new role. This might be experienced as an *unhealthy* adaptation, which takes a psychic toll on the individual resulting in frustration and unhappiness in the new role.

In contrast to Kegan's understanding of variation in developmental level as an uncomfortable deviation from our true MC, Kurt Fischer sees variation in developmental level as the nature of development.

Theoretical Kin: Fischer's Skill Theory and Kegan's Subject-Object Theory

Based on his extensive program of research (e.g. K.W. Fischer & Bidell, 2006; K. W Fischer & Bullock, 1981; K. W. Fischer & Yan, 2002; K. W. Fischer, Yan, & Stewart, 2003), Kurt Fischer takes a dynamic approach to psychological structure that emphasizes the domain-based, activity-based, dynamic, culturally constructed, and situated nature of development.

Fischer explains why the domain and other contextual factors are so important when considering the contribution of complexity to performance:

> …people's activities are embodied, contextualized, and socially situated, understood in their ecology (U. Bronfenbrenner & P. Morris, 2006)…People act jointly with other people within culturally defined social situations, in which activities are given meaning through cultural frames for interpretation (Rogoff, 1990). Action in context is the center of who people are and how they develop… [The] complexity of people's behavior varies widely and systematically from moment to moment and across contexts… (K.W. Fischer & Bidell, 2006, p.316).

For Fischer, a person's level of MC is evident in the complexity of his or her behavior in each moment. Variability is pervasive and may change due to many factors, such as being with different people, in a different situation, or being in a different emotional state. Fischer argues against making an artificial conceptual separation between the complexity of a person's psychological structure and the complexity of skills which he or she enacts based on that structure. The complexity of a person's skill in a given moment and in a particular context *is* his or her psychological structure.

Fischer refers to his theory of development as *Skill Theory* because a person's dynamic action in context or *dynamic skill* provides a useful way of integrating, "… many of the necessary characteristics of psychological structure into a single familiar idea" (K.W. Fischer & Bidell, 2006, p.321). His "skill" construct integrates concepts from the cognitive revolution of the 1950s and 60s (e.g. Bruner, 1973; Gardner, 1985), the ecological revolution of the 1960s and 1970s (e.g. U. Bronfenbrenner & P. A. Morris, 2006) and the emotive revolution of the 1980s and 1990s (e.g Frijda, 1986; Lazarus, 1991) including EI (Mayer, Salovey, & Caruso, 2008).

Fischer's concept of skill is based on elements such as the importance of goals, self-regulation, organism-environment interaction, and the social foundations of activity. Skill theory also follows Piaget's (1970) and Vygotsky's (1978) insistence that activity is

the basis of cognitive structure, which is defined as systems of relations. (K.W. Fischer & Bidell, 2006, p.321). For example, a leader's MC might be revealed by the skill with which she leads a meeting. That skill might pull together, "… systems for emotion, memory, planning, communication, cultural scripts, speech, gesture, and so forth" (K.W. Fischer & Bidell, 2006, p.321).

Overlap Between Kegan and Fischer's Theories

How does this relate to Kegan's theory? There is overlap between Kegan and Fischer's theories in that they agree on the outlines of development (on the qualitative characteristics of each complexity level and the step-wise shape of development). Kegan's Subject-Object concept also fits with Fischer's view of a psychological structure as systems of relations. They also agree on the constructive, culturally- and socially-embedded nature of human psychological processes.

In addition to agreement between Kegan and Fischer about the broad outlines of development, both also understand people as embedded in cultures, social contexts, and human ecologies. Fischer and Kegan draw on different sources, but their conclusion is similar. Kegan draws on sources such as Piaget (1970), Winnicott (1965), and Kohlberg (1969) and his own analysis to argue that the developing person is influenced by his or her "culture of embeddedness" (1982) or "cultural surround" (1994). Fischer refers to Bronfenbrenner's notion of human ecology (U. Bronfenbrenner & P. Morris, 2006) and Rogoff's cultural psychology (Rogoff, 1990) to indicate that a person's sensemaking occurs within the context of various social and cultural influences.

However, Fischer's work is grounded in more recent psychological literature, such as mind-brain research, and more fine-grained experimental empirical work, which

detected meaningful variability in psychological structure. Fischer's work can be used to complement Kegan's concept of what complexity is. Fischer's theory can by used to put Kegan's Piagetian structuralism (1970), the notion of fixed stages that endure for a period of time, in relief with the concept of dynamic structures that vary across contexts domains (which Fischer also calls skill areas), situations, and tasks. To see how Fischer's work can complement Kegan's theory in this way, let us look more closely at where the two theories overlap.

Kegan and Fischer agree that the development of increasingly complex psychological structure is characterized by periods of relative stability (plateaus) during which a person's complexity is mostly at a single level followed by shorter periods of change between a level and the next more complex level (K.W. Fischer & Bidell, 2006; Kegan & Lahey, 2009). Figures 2-5 and 2-6 show this graphically. In order to compare the shape of development between these graphs, one can look at Kegan's graph and compare it to the shape of the Fischer graph by looking at the last three rises of Fischer's curve, to the right of AM, AS, and SP (AM = Abstract Mappings, AS = Abstract Systems, and SP = Single Principles). Comparing Kegan's graph to the relevant range in Fischer's graph shows that the shape of development is quite similar.

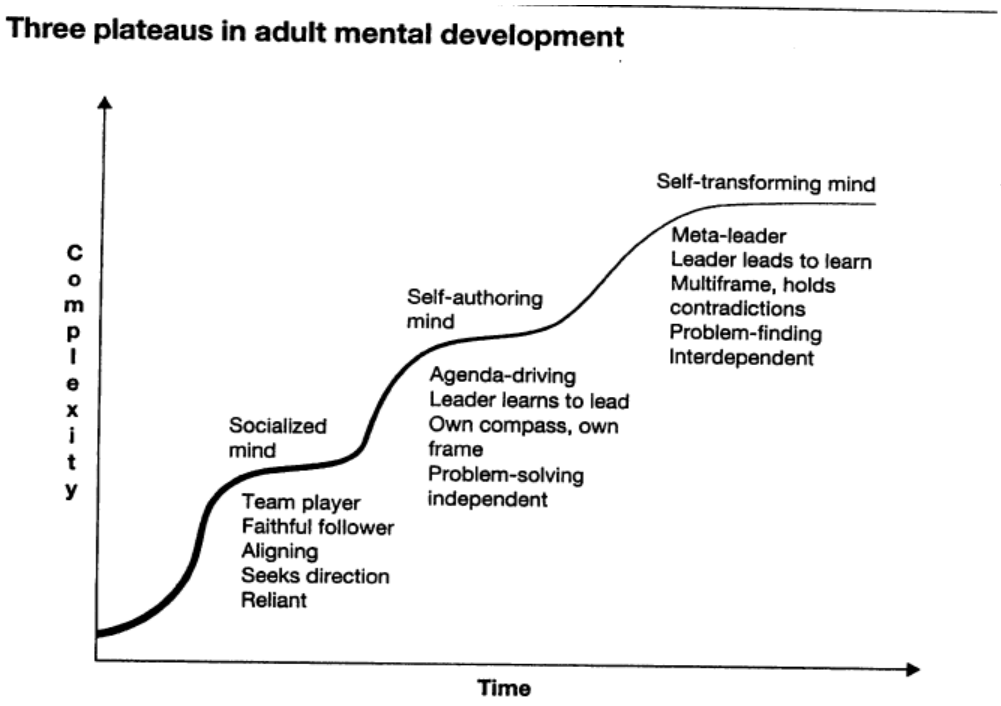

Figure 2-5. Kegan's 3 Plateaus in Mental Development… (Kegan & Lahey, 2009, p. 16)

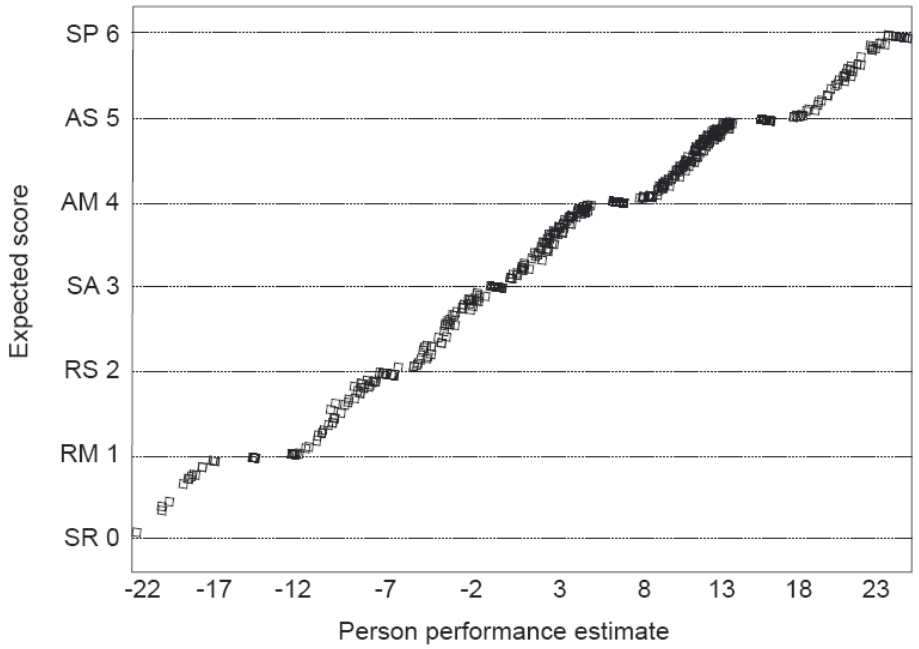

Fig 2-6. Fischer's Shape of development (Dawson-Tunik, Commons, Wilson, & Fischer, 2005)

Kegan's graph is based on longitudinal data gathered using Subject-Object interviews (Lahey, Souvaine, Kegan, Goodman, & Felix, 1988). Analysis of Subject-Object interviews yields a score for a person's complexity level based on his or her meaning-making about his or her own real-life experiences. Scoring of a Subject-Object interview produces a single score to represent a person's cognitive, emotional, interpersonal, and intrapersonal level of developmental complexity. The measure is domain-general, which is to say that the level is considered to apply across domains (as explained above in the discussion of Kegan's consistency hypothesis).

The Fischer graph is representative of many growth curves from his research (K W Fischer & Rose, 1999). But, slightly different than Kegan, Fischer has also studied dynamic variation in a person's developmental complexity depending on different contextual factors. For example, Figure 2-8 shows the developmental range, which is "the interval between a person's best performances with and without social contextual support in some domain," (Fischer & Bidell, 2006, p. 330). Fischer's research shows that social support such as scaffolding has been shown to lead to one's *optimal* level of skill, while conditions of low support lead to one's *functional* level.

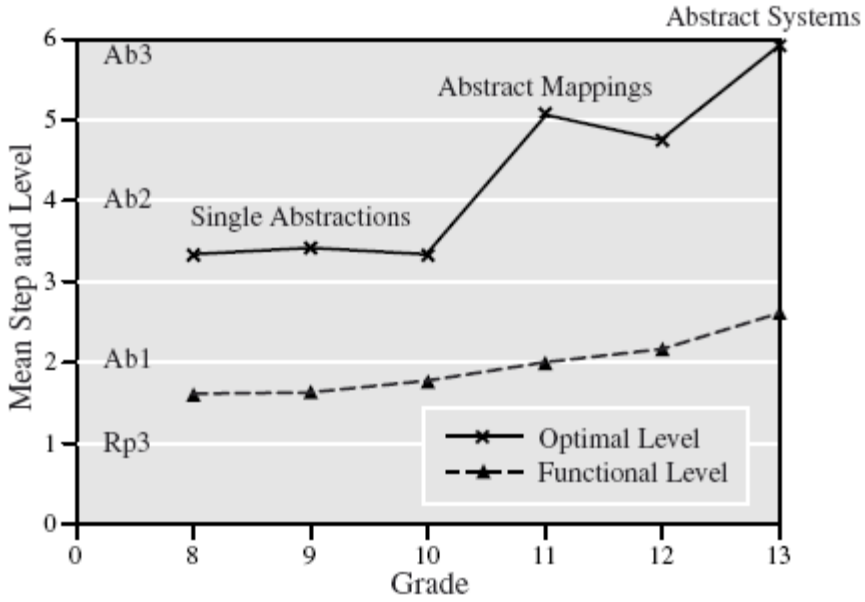

Figure 2-7. Graph showing variation in developmental levels for Self-in-Relationship Interview of Korean adolescents. The graph shows that, on average, adolescents showed higher developmental structure under conditions of support. (K.W. Fischer & Bidell, 2006, p. 331)

Similarly, Fischer has studied the difference between micro- or short-term development and macro- or long-term development. His view of macro-development is similar to Kegan's as shown in Figures 2-6 and 2-7 above. However, he has repeatedly found variation in development across different domains on a micro-level. This variation is depicted in his "developmental web", an example of which appears in Figure 2-9 (each downward strand represents a different domain or skill area), that shows variation in development within skill areas and across different skill areas within the same individual. On a macro level, new skills levels may emerge at similar times across skill areas, but on a micro-level there is a lot of variation in the emergence of different skills.

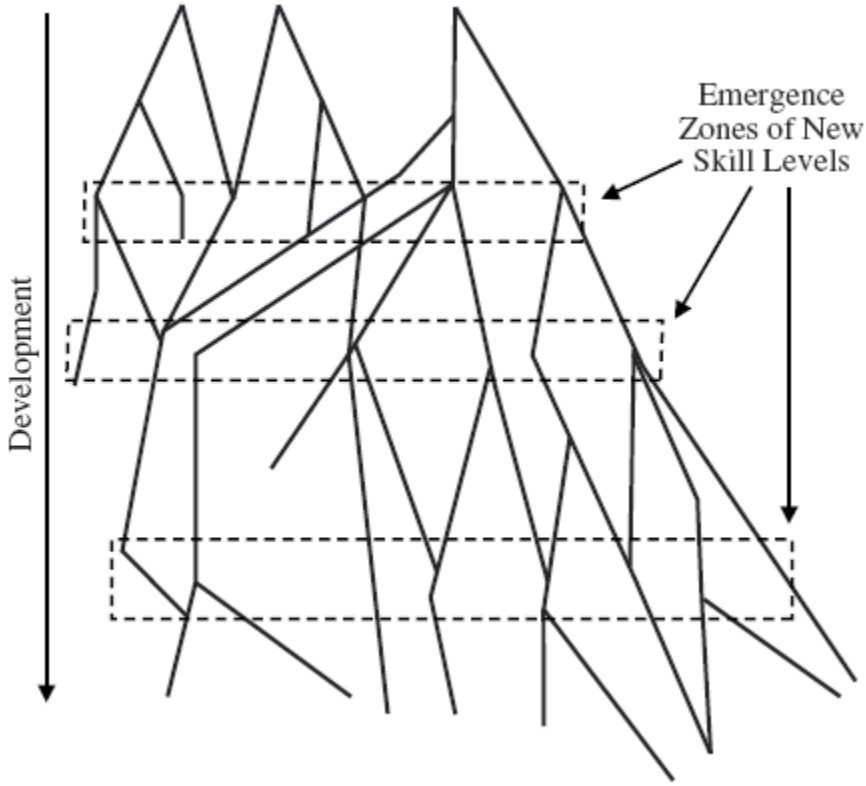

Figure 2-8 Developmental web showing the variation in development within skill areas and between skill areas (K.W. Fischer & Bidell, 2006, p. 364).

To summarize, Kegan and Fischer agree about the general shape of development, but Fischer's research has demonstrated (see K.W. Fischer & Bidell, 2006) that, on a micro-level, psychological structure can vary dynamically across different situations, contexts, and skill areas or domains. Fischer's impressive body of empirical work can be used to complement Kegan's theory by presenting the possibility that variation in an individual's complexity level is meaningful, representing differences in complexity across situations, contexts and domains, and not a deviation from a person's stage of development.

Concordance Between Fischer and Kegan's levels of MC

Given the theoretical and empirical fit between Kegan and Fischer it may not be surprising that there is a concordance between Fischer's 12 complexity levels and Kegan's 5 stages (Michael Lamport Commons & Bresette, 2006). Fischer's complexity levels indicate the complexity of concepts or behaviors in a person's performance and the complexity with which that person co-ordinates his or her behaviors. As seen in Table 2-1 below, Kegan's *Socialized Mind* concords with Fischer's levels 9 (*Single Abstractions*) and 10 (*Abstract Mappings*). At this level a person is capable of abstract constructions and able to relate abstractions to one another. Kegan's *Self-Authoring Mind* concords with Fischer's level 11 (*Abstract Systems*). At this level a person is capable of systems constructions as in systems thinking. Kegan's *Self-Transforming Mind* concords with Fischer's level 12 (*Single Principles*). The quality of complexity at this level could be described as meta-systems or systems of systems thinking.

Table 2-1.

Concordance Between Fischer's Dynamic Skill Levels and Kegan's Orders of Consciousness.

Kegan's (1982, 1994) Orders of Consciousness	**Fischer's** (1980; 2006) Dynamic Skill Levels
3rd Order	9
Socialized Mind	Single Abstractions
3/4	10
-	Abstract Mappings
4th Order	11
Self-Authoring Mind	Abstract Systems
5th Order	12
Self-Transforming Mind	Single Principles

Kegan's theory is, in my view, very useful for describing qualitative differences in complexity. In analyzing interview data for this study for example, it was helpful to think about Kegan's notion of what was subject for the person (what they were fused with, identified with, could not "see" or reflect upon) and what was object (that which they were not "had" by or identified with, and were able to reflect upon).

Given the complementarity between Kegan and Fischer's theories, I would argue that it makes sense to draw upon Fischer's research to justify talking about meaningful variation in MC that leaders display across various contexts and to use Kegan's (or both Kegan's and Fischer's) concept of complexity levels to describe complexity levels that leaders display in various domains or contexts. Whether one thinks of development

according to Kegan or Fischer's theory, there is some evidence to suggest higher complexity levels are correlated with leadership effectiveness.

Evidence of the Association Between MC and LE

A series of studies on 510 leaders in the U.S. intelligence sector, using a measure based on Fischer's theory (T L Dawson, 2009d), suggests that strategic leaders had significantly higher complexity scores than middle-level managers (T L Dawson, 2009a). In another study of 21 CEO's and 21 mid-level managers in large, successful companies over a variety of industries, Eigel found a significant correlation between higher complexity level and leaders' effectiveness at challenging existing processes, inspiring a shared vision, managing conflict, solving problems, delegating, empowering others and building relationships (Eigel, 1998). On average, more effective leaders had complexity levels between Kegan's *Self-Authoring Mind* and *Self-Transforming Mind*. Similarly, Steeve's (1997) dissertation study of 45 bank managers found that those with greater complexity of mind stimulated innovation and problem-solving to improve organization. Benay's (1997) dissertation study found higher transformational leadership scores associated with higher ego stage in leaders of mid-sized food distribution companies. Spillett (1995) found that leaders below Kegan's fourth order were reluctant to delegate, hold others accountable, express disagreement, and felt threatened by others' complaints while those at or above Kegan's fourth order held others accountable, evaluated complaints and expressed disagreements.

Further evidence comes from a study of 10 organizational development efforts over 10 years. As mentioned above, Rooke and Torbert found that leaders with complexity of mind below Kegan's fourth order were significantly less effective than

those more complex than Kegan's fourth order[18]. Perhaps more important, those with complexity of Kegan's fifth order were able to innovate successfully and to transform themselves and their organizations (Rooke and Torbert, 2005) but three of five CEOs with fourth order complexity failed to do so.

To use one more example, a study of 67 leaders participating in a leadership development program suggests that complexity level may be a significant predictor of leadership performances. Leaders' constructive-developmental level was found to be associated with a unique component of the variance in raters' 360-degree leader performance ratings beyond what could be accounted for by personality (Strang & Kuhnert, 2009).

There is also research in the leadership literature that shows leadership effectiveness is related to concepts that are much like Kegan and Fischer's notions of MC, such as conceptual complexity in Jacques' Stratified Systems Theory (Jacobs & Jaques, 1990; Jaques, 1986) and behavioral complexity (Denison, Hooijberg, & Quinn, 1995; Hooijberg et al., 1997). For example, in a study of 176 executives, effective leaders show more complex, contradictory, and paradoxical behaviors than ineffective leaders (Denison et al., 1995). Zaccaro has compiled a comprehensive conceptual and empirical review of conceptual complexity and behavioral complexity as it relates to effective executive leadership (Zaccaro, 2001).

In sum, there is emerging evidence that complex psychological structure is correlated with effective leadership. If this is so, does psychological structure by itself

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[18] Rook and Torbert measured MC using a modified version of the Loevinger's Sentence Completion Test (Summarized from Souvaine et al., 1990, pp. 236-237) developed by Suzanne Cooke-Greuter and now known as the SCTi-MAP (Loevinger & Wessler, 1970) or Leadership Development Profile (S. Cook-Greuter, 2011)

explain the skills and abilities a leader uses to enact (or fail to enact) sufficiently complex leadership behavior? Or, do we need to also consider the "content" of skills and abilities a leader might draw upon to translate psychological structure into action?

Is There a Distinction Between Psychological Structure and Content?

Fischer might assert that psychological structure and psychological content are very closely involved with each other and that we can't reduce a person's perception, representation, or thinking to one or the other. A person's skills and action in context in any moment *are* his or her psychological structure. Further, those actions vary depending on the domain, cultural context, social situation, ecology, emotional state, and so on. Skills are central to an activity like leadership but they are not, for Fischer, separate from MC.

Kegan's theory, on the other hand, holds a structure-content distinction. For example, when considering people's stylistic differences due to personality type (which might be assessed using the Myers-Briggs Personality Type Indicator) or gender, Kegan argues, "we would do well to take a jointly stylistic and structural approach to our understanding of psychological phenomena" (1994). If a female leader has a stylistic preference for caring and connection, as Gilligan has argued is true for some women (Gilligan, 1982), that stylistic "content" should be considered jointly with the complexity level or "structure" at which that leader constructs caring and connection. A person's stylistic preference for caring and connection can be enacted with the mutuality of the *Socialized Mind*, the individuation of the *Self-Authoring Mind*, or the self-transcending ability of the *Self-Transforming Mind*.

Similarly, Kegan argues that to understand a leader's strengths and limits, it is fruitful to consider his or her complexity level separately from his or her skills and abilities (Kegan, 1994; Kegan & Lahey, 2009). This enables us to see, for example, that a highly intelligent leader may be ineffective if he or she cannot construct responses to complex leadership demands with sufficient MC. In the present study, for instance, we will encounter highly intelligent scientists who do not construct social situations with sufficient complexity to adapt to the competing demands being placed upon them by scientific problems, by over-ambitious subordinates, and by difficult peers or superiors.

Whether one tends to agree with Kegan's structure-content distinction or Fischer's emphasis on skill, what abilities does a leader need to construct with sufficient complexity to meet a particular set of leadership demands?

Emotional Intelligence

The present study focuses on a set of abilities known as *emotional intelligence* (EI). The wide acceptance of EI in the workplace and scholarly activity around it can likely be largely attributed to Daniel Goleman's book *Emotional Intelligence* (Goleman, 1995) which sold millions of copies (Salovey, Bedell, Detweiler, & Mayer, 2000). Mayer and Salovey were the first ones to coin the term emotional intelligence (Salovey & Mayer, 1990), but Goleman built on the concept and made it widely known.

In organizations, most do not have reason to be concerned with whether EI actually has to do with both emotions and intelligence or anything new. Within a scholarly context, however, a model of EI should have to do with emotions and intelligence. Of the three main models of EI all have their limits, but I chose to use one by Salovey and Mayer because the other two models, by Goleman and colleagues and

Bar-On, reach beyond the realm of intelligence into the areas of personality and motivation.

Goleman's Model of EI

Daniel Goleman's model of EI (Goleman, 1995, 1998a, 1998c, 2000, 2001; Goleman et al., 2002) and its measure called the Emotional Competence Inventory (Sala, 2002) (ECI) focuses on one's capacities for self-awareness, social awareness, self-management, and relationship management. This model has been critiqued for integrating motivational abilities and well-understood personality traits under the rubric of emotional intelligence (e.g. Matthews, Zeidner, & Roberts, 2002). For example, emotional competencies in this model suggest that people high on EI are able to take initiative, strive for excellence, be persistent, be empathetic, and resolve conflicts. This not only subsumes the fields of achievement motivation and personality psychology but presumes that having these abilities will lead to socially productive patterns of behavior (Gardner, 1999). The competencies in this model are desirable for leadership, but exceed the scholarly boundaries of intelligence. Unsurprisingly, data gathered from the ECI, which is a self-report measure, fail to demonstrate that EI might represent a new and valid construct (e.g. Matthews et al., 2002).

Bar-On's Model of EI

Another main model of EI by Reuven Bar-On is based on a well-studied psychometric instrument, the Emotional Quotient Inventory (EQi) (Reuven Bar-On, 1997, 2000), but, like Goleman's model, Bar-On's model is highly correlated with personality traits. The EQi assesses intrapersonal intelligence (defined as self-awareness, self-regard, self-actualization, independence), interpersonal intelligence (empathy,

interpersonal relationships, social responsibility), adaptability (problem-solving, reality testing, flexibility), and stress management (tolerance and impulse control). It also assesses general mood (happiness and optimism). (There is now an EQ-i 2.0 which changes the terminology slightly (R Bar-On, 2011). Looking at the items measured by EQi, this model has the same issues for construct measurement as Goleman's model. The abilities measured may be desirable and important for leadership, and they may conform to what many in the workplace think of as EI, but they go beyond the realms of emotions and intelligence.

The EQi has other problems. Despite claiming strong reliability and validity, it is a self-report instrument, which is susceptible to response bias and accepts its own definition of EI to determine validity. Second, like Goleman's model, it assumes that intelligence is only used in pro-social ways.

In order to solve the problems with Goleman's and Bar-On's models, we need a model of EI that fits a scholarly conception of emotions and intelligence; does not overlap with personality traits; and does not imply that EI abilities will be used for pro-social behavior. In addition, although no measure is ideal, a measure of EI free from self-report bias was considered desirable for this study. Mayer and Salovey's four-branch model of EI fits these criteria.

Mayer and Salovey's – 4-Branch Model of EI

Peter Salovey of Yale University and John Mayer of the University of New Hampshire began the academic field of EI in 1990 when they proposed the construct of emotional intelligence (Salovey & Mayer, 1990) as a way to integrate scattered literature on emotions and cognition. They were building on the openness to multiple intelligences

created in the 1980's by Gardner (Gardner, 1983) and Sternberg (e.g. Sternberg, 1988) (Mayer, Roberts, & Barsade, 2008). Unlike Goleman and Bar-On, Mayer and Salovey reasoned that a model of EI should be confined to emotions and intelligence, without falling into the trap of branching into personality psychology in order to explain how emotions can be used intelligently for desirable social outcomes.

In 1997, Mayer and Salovey laid out a four-branch model of EI (1997) which included four emotional abilities – perceiving, using, understanding, and managing emotions. Perceiving emotions included, "the ability to perceive emotions in oneself and others, as well as in objects of art, stories, music, and other stimuli" (Mayer, Salovey, & Caruso, 2002, p.7). Using emotions to facilitate thought included, "the ability to generate, use and feel emotion as necessary to communicate feelings, or employ them in other cognitive processes," (Mayer et al., 2002, p.7). Understanding emotions included, "the ability to understand emotional information, how emotions combine and progress through relationship transitions, and to appreciate such emotional meanings" (Mayer et al., 2002, p.7). Finally, managing emotions included, "the ability to be open to feelings, and to modulate them in oneself and toward others so as to promote personal understanding and growth" (Mayer et al., 2002, p.7).

Once their four-branch model of EI was established, Mayer and Salovey set about testing it with various psychometric scales to see if could be scientifically legitimated by meeting the following criteria:

> First, it should be capable of being operationalized as a set of abilities. Second, it should meet certain correlational criteria: the abilities defined by the intelligence should form a related set (i.e. intercorrelated), and be related to pre-existing intelligences, while also showing some unique variance. Third, the abilities of the intelligence should

> develop with age. (Mayer, Caruso, & Salovey, 2000, p. 267)

Mayer and Salovey viewed EI as fitting into a hierarchy of intelligences such as the one proposed by John Carroll (1993). In a seminal work, Carroll used the statistical technique of factor analysis to reanalyze over 400 data sets of human cognitive abilities. Carroll developed his own hierarchical taxonomy of intelligence that specified sub-factors of intelligence based on factor loadings. In Carroll's model, each sub-factor was highly intercorrelated with the general factor (*g)*, yet each also varied uniquely (suggesting that each represented a different part of intelligence). Likewise, Mayer and Salovey developed a test for their theory of EI and used factor analysis to establish that EI is composed of 4 abilities.

Mayer and Salovey, along with David Caruso ultimately developed the Mayer-Salovey-Caruso EI Test (Mayer et al., 2002). This test provides an overall EIQ score that can be broken down into an experiential score (reading others' emotions) and a Strategic score (regulating one's own emotions.) The two areas, in turn, are broken down into four branches: perceiving emotions, facilitating thought, understanding emotions, and managing emotions. We see in Table 2-2, a detailed description of Mayer and Salovey's four branches of EI abilities.

Research on EI and Workplace Outcomes

Research on EI, using MSCEIT, and workplace outcomes suggest that EI by itself is not enough to explain leadership effectiveness. For example, Rosette and Ciarrochi's (2005) study of 41 Australian public service executives correlated two branches of MSCEIT (r = mid .30's) with, "cultivates productive working relationships," but not with "achieves results." Lopes et al. (2006) found MSCEIT scores for 44 analysts and

Table 2-2.

Mayer and Salovey's Emotional Intelligence (1997, p.11)*:* Four branches of skills with more basic psychological processes on the bottom and more psychologically integrated ones toward the top. The earlier appearing abilities are to the left and the later developing ones are to the right.

4. Reflective Regulation of Emotions to Promote Emotional and Intellectual Growth			
Ability to stay open to feelings, both those that are pleasant and those that are unpleasant.	Ability to reflectively engage or detach from an emotion depending upon its judged informativeness or utility.	Ability to reflectively monitor emotions in relation to oneself and others, such as recognizing how clear, typical, influential or reasonable they are.	Ability to manage emotion in oneself and others by moderating negative emotions and enhancing pleasant ones, without repressing or exaggerating information they may convey.
3. Understanding and Analyzing Emotions; Employing Emotional Knowledge			
Ability to label emotions and recognize relations among the words and the emotions themselves, such as the relation between liking and loving	Ability to interpret the meanings that emotions convey regarding relationships, such as that sadness often accompanies loss	Ability to understand complex feelings: Simultaneous feelings of love and hate, or blends such as awe as a combination of fear and surprise.	Ability to recognize likely transitions among emotions, such as the transition from anger to satisfaction, or from anger to shame.
2. Emotional Facilitation of Thinking			
Emotions prioritize thinking by directing attention to important information.	Emotions are sufficiently vivid and available that they can be generated as aids to judgment and memory concerning feelings.	Emotional mood swings change the individual's perspective from optimistic to pessimistic, encouraging consideration of multiple points of view.	Emotional states differentially encourage specific problem approaches such as when happiness facilitates inductive reasoning and creativity
1. Perception, Appraisal, and Expression of Emotion			
Ability to identify emotion in one's physical states, feelings, and thoughts.	Ability to identify emotions in other people, designs, artwork, etc., through language, sound, appearance, and behavior.	Ability to express emotions accurately and to express needs related to those feelings.	Ability to discriminate between accurate and inaccurate, or honest versus dishonest expressions of feeling.

administrative employees correlated with company rank, pay raises, ratings of sociability, and ratings of contribution to a positive working environment, but did not establish a link between MSCEIT and effective leadership. In one of the best-quality studies on EI and work outcomes, the investigators researched 175 university employees and found that high levels of EI compensated for a lack of cognitive intelligence; it led to better task performance and ratings of organizational citizenship (Côté & Miners, 2006). Again, MSCEIT is correlated with positive work outcomes, but not with effective leadership. Overall, Van Rooy and Viswesvaran (2004) have observed that research on MSCEIT and work performance has yielded mixed results suggesting that there may be variables that moderate between EI and work outcomes. I designed the present study, in part, to explore whether MC is a variable that might moderate between EI and LE.

A Tale of Two Systems: Dual Processing Accounts of Reasoning, Judgment, and Social Cognition

As I worked to analyze the data collected in the present study, I consulted *Thinking, Fast and Slow* (Kahneman, 2011) and *The Marshmallow Test* (Mischel, 2014). Each book is a masterpiece that summarizes, in simple language, a lifetime of research and learning by its author. On one hand, the two scholars have focused on different parts of everyday life. Kahneman's work focuses, in part, on rationality, judgment, and decision-making and Mischel's work centers on delay of gratification. On the other hand, they have both investigated and elaborated a view of the mind (and brain) as being made up of two intertwined and interacting systems.

The first system, called System 1 by Kahneman and the Hot System by Mischel is lightning-fast and reactive. The second system, named System 2 by Kahneman and the

Cool System by Mischel is slow and reflective. In what follows, I will introduce each author's work and will then advance a view of how it might relate to the interaction of MC and EI as they relate to LE.

Kahneman is a Nobel Laureate in economics. He was awarded the prize in 2002, "for having integrated insights from psychological research into economic science especially concerning human judgment and decision-making under uncertainty" (nobelprize.org, 2014). In a field now known as behavioral economics, his work uncovers the reality that we are not as rational as the "economic man" that economists have assumed us to be. As Richard Thaler of the University of Chicago and Cass Sunstein, now at Harvard Law School, humorously write in their book *Nudge(2008)*, "If you look at economics textbooks, you will learn that *homo economicus* can think like Albert Einstein, store as much memory as IBM's BigBlue, and exercise the willpower of Mahatma Gandhi."

Kahneman's work, begun in collaboration with the late Amos Tversky, showed that we do not make rational judgments and decisions although we are under the illusion that we do. This is caused, according to Kahneman, because we often use our unreflective and biased fast thinking. In contrast, our slow thinking--the kind we would use to solve a problem like 17 x 24--is reflective and complex. When thinking slowly, we check the reasonableness of our estimates and assumptions, we think things through, consider multiple perspectives, and use accurate frames of reference. Our fast mind, in contrast, jumps to conclusions due to biases, priming, heuristics (rules of thumb), available information, associations, our emotional state, and other factors that misguide us. Fast thinking operates on the illusory principle of *what you see is all there is* (WYSIATI).

Kahneman refers to this fast, intuitive thinking as *System 1* and he calls the reflective mind *System 2.* As shown in Table 2-3, System 1 is fast, reflexive, hot, and emotional and System 2 is slow, reflective and cool.

To illustrate, here is the Cognitive Reflection Test (Frederick, 2005).

> A bat and a ball cost $1.10. The bat costs $1.00 more than the ball.
>
> How much does the ball cost? _____ Cents.

Some, including me, respond quickly with the intuitive answer offered to them by their own System 1, "10 cents." But that would bring the cost of the bat and the ball to $1.20. Only when people who answer 10 cents slow down and engage System 2 do they tend to realize that they answered (using System 1) without thinking things through. Tellingly, I have found that for those who give the answer "10 cents" it can be hard to understand the correct answer when it is revealed. It is as if the System 1 must cool down before the cool system can become engaged.

Walther Mischel's terms for System 1 and System 2 are the hot emotional system and the cool cognitive system – or just *hot system* and *cool system* (see Table 2-3) (Metcalfe & Mischel, 1999). These two cognitive processes have a brain basis in the limbic system and prefrontal cortex respectively. The hot system and the cool system have been at the heart of Walter Mischel's pioneering work on self-control that began at Stanford University in the early 1960's and still ongoing.

The research was conducted in "The Surprise Room" of the Bing Nursery School at Stanford University, where Michel's children went to preschool. The protocol

consisted of a test, dubbed “The Marshmallow Test” many years later by NY Time columnist David Brooks and went as follows. A friendly adult (often a graduate student) played with the children and, once the child was at ease, she was presented with a choice. She could have one treat now (a marshmallow or cookies or other goodie) or wait until later for two treats.

The adult would then leave the room (for about 15 minutes) and the child would stay behind, seated at a table with the treat and a desktop bell in arm’s reach. If at any time she wanted to eat the treat rather than waiting for two treats, she could ring the bell and the adult would return. The adult practiced this with the child before leaving the room so the child would trust the adult would return if she rang the bell. Meanwhile, researchers watched through a one way mirror to see if these young children could delay gratification for a larger reward and what strategies they used. Some children could delay gratification and some couldn’t.

The children who waited used some ingenious strategies, including distancing the treat (e.g. pushing it away from themselves); self-distancing (e.g. imagining being somewhere else), distracting themselves by playing a game or singing a song; and reappraising the treat as something poisonous rather than sweet, chewy, and yummy. Mischel later discovered that adults could use the same strategies to exercise self-control.

Mischel did not originally intend to follow the “marshmallow kids” over time. Over the years following the research Mischel would sometimes ask his daughters about their peers who had participated in the research. How is Sam doing? How’s Debbie? Then, when his daughters were in their early teens he started to investigate such questions systematically. He asked his daughters to rate their nursery classmates from 1 to 5 on

how they were doing socially and in school. Comparing these ratings with the original data set, he saw a clear correlation. He realized he had to study this connection seriously (Mischel, 2014, p.22).

Thus, Mischel and his students started the Stanford longitudinal studies of delay of gratification. They began following a sample of the 550 children who participated in the research between 1968 and 1974; 45 years later they are still collecting data.

About once every decade, they collected wide-ranging data on participants' occupational, marital, physical, financial, and mental health status. They are still surprised by the findings. For example:

> In adolescence the children who exercised self-control as preschoolers, …exhibited more self-control in frustrating situations; yielded less to temptation; were less distractible when trying to concentrate; were more intelligent, self-reliant, and confident; and trusted their own judgment. When under stress they did not go to pieces as much as the low delayers did, and they were less likely to become rattled and disorganized or revert to immature behavior. Likewise they thought ahead and planned more, and when motivated they were more able to pursue their goals. They were also more attentive and able to use and respond to reason, and they were less likely to be sidetracked by setbacks… (Mischel, 2014, pp. 23-24)

In their 20's and 30's the delayers had reached higher levels of education than non-delayers, were significantly thinner, more resilient in the face of relationship difficulties, maintained closer relationships, and more able to reach long-term goals. When the cohort reached their 40's, Mischel and his colleague and former student Yuichi Shoda teamed up with cognitive neuroscientists.

Using fMRI studies, they discovered that the delayers who had maintained self-control over the years had noticeably different brain activity from the others. The high delayers had more activity in their prefrontal cortex—the region of the brain where

Table 2-3
Characteristics of Two Systems

Hot System	Cool System
Emotional	Cognitive
"Go"	"Know"
Simple	Complex
Reflexive	Reflective
Fast	Slow
Develops early	Develops late
Accentuated by stress	Attenuated by stress
Stimulus control	

(Reproduced from Metcalfe & Mischel, 1999, pp., p.4)

activities underlying executive function occur. In contrast, the lower delayers had more activity in the limbic system, the parts of the brain, considered to have developed earlier in human history and linked to desire, pleasure, and hot fight-or-flight responses. The researchers discovered that self-control difficulties and abilities had changed participants' brains.

Hot system, Cool system and Their Plausible Relationship to MC, EI, and LE

As I report in Chapter 11, activation of the hot and cool systems seemed plausibly to make a difference for LE in the present study. One might say that when leaders

exhibited strong LE, they tended to be reflective. It appeared as if they used the cool system to strategize, plan, and achieve self-control. Remaining cool and reflective helped them deal with leadership challenges in calm and effective ways. And, the more a leader looked at situations in a complex way the more he or she tended to be able to deal coolly with the complexities and uncertainties inherent in biotech leadership.

However, most leaders routinely got into trouble in particular contexts (different ones for different leaders) when challenging events appeared to accentuate their hot system. In response to the different stimuli that different leaders experienced as stress-inducing, leaders seemed to outwardly lose self-control and become reactive or to withdraw from the challenges in ways that diminished their LE.

Presumably, in these instances, the hot system accelerated and became dominant while the cool system attenuated. As Mischel explains:

> The hot system and the cool systems continuously and seamlessly interact in a reciprocal relationship: as one becomes more active the other becomes less active. Although we rarely deal with lions, we daily face the endless stresses of the modern world, in which the hot system is often up, leaving us with our cool system down just when we need it most (Mischel, 2014, p.46).

When leaders reportedly felt threatened, insecure, excited, or anxious about leading effectively they struggled with the temptation to react or withdraw. If we think of temptation as an urge to satisfy one or more of our most basic evolutionary drives—such as the desire to eat fatty foods in order to help us survive until the next meal at an uncertain point in the future, or the need to protect ourselves from predators--we can understand why it seemed so hard for leaders to maintain self-control in certain situations,

even if there are no lions. (At least one hopes for organizational cultures in which one need not be on alert for attacks!)

A question I address in Chapter 12 is what leaders can do to prevent or recover from hijacking by the hot system? Mischel's answer is that the core strategy is to, "cool the now: heat the later". In other words, manage the hot reactive system to keep it from dominating and activate the cool system. And, engage both the hot system and the cool system to vividly imagine pleasurable positive or painful and/or frightening negative consequences in the future.

It seems to me that MC and EI can play complimentary, perhaps even joint roles in successfully executing this strategy. The "master aptitude" in emotional intelligence is self-control and it can be used to cool the hot system (Mischel, 2014, p. 6).

MC, it would seem, can cool the hot system on one hand and boot up the cool, reflective system on the other through cognitive reappraisal:

> The power is not in the stimulus, however, but in how it is mentally appraised: if you change how you think about it, its impact on what you feel and do changes. The tempting chocolate mousse on the restaurant dessert tray loses its allure if you imagine a cockroach just snacked on it in the kitchen (Mischel, 2014, p. 36).

This fits, in my view with Kegan's theory that can be read as a story about our potential for developing increasing ability to re-appraise our experience. Through increasingly complex mindsets, we can develop the ability to cease being *had* by certain stimuli that formerly triggered our emotional system. If this is so, it may have educational implications for LE, as I discuss in Chapter 12. It should be noted, however, that no matter what our level of MC, or EI for that matter, that with difficult-to-control behaviors

like overeating, we can be acutely aware of such problematic habits, yet find we have very little control over them (Perkins, 2015).

We can, however, according to Mischel, make it less futile to try to control these hot-system behaviors by using our cool system, our MC, to develop *If-Then* implementation plans (Gollwitzer & Oetingen, 2012). These plans can help create a self-control response by training our hot systems to associate a stimulus with an intrinsically satisfying alternative response. To take the example of overeating, a plan might be: *if* I am offered ice cream, *then* I will say 'no' and have a piece of fruit instead. For many reasons, this is very difficult to do and even harder to maintain. But, Mischel suggests that, with persistent practice over a long period of time, we can learn to trick our hot system into having a reaction about which we will feel good. Similarly, we can get better at using our MC to reappraise situations so that our cool reflective system can be in the driver's rather than the passenger's seat.

Cool the Now: Heat the Later

MC and EI can both be used in the service of attempting to keep the reflective cool system dominant by doing things to attenuate the hot system and activate the cool system.

MC can help "cool the now" through cognitive re-appraisal, and distancing oneself from hot stimuli (another subject-object-like move). It can also help heat the later by helping us reappraise how certain plans, like a new business strategy, might turn out in the future. To take a famous example from the computer industry, in 1995 when Steve Jobs returned to Apple after years of exile, the company was faltering badly. But that's not the only way Jobs saw it. He saw in Apple the talent, creativity, and product quality

on which he could build to make the company dominant in the personal computer industry again, as it had been in the late 1970's and early 1980's.

Mischel points out that Shakespeare's Hamlet understood the power of reappraisal, when he said, "There is nothing either good or bad, but thinking makes it so" (Mischel, 2014, p. 36).

EI can help us exercise self control, keeping the hot system at bay while the cool system boots up. As mentioned, EI can also "heat the later" by engaging the hot system to help us imagine pleasurable positive consequences (e.g. "I will feel pleased with my appearance and proud of myself if I lose weight.") or by vividly imagining the negative consequences (e.g. "I will become overweight if I overeat and risk life-threatening illnesses"). Exercising self-control in the face of the hot system is very hard, as Oscar Wilde noted in his famous line, "I can resist everything except temptation." Wilde's line might bring to mind resisting a tempting chocolate dessert, but it refers to losing self-control in a social situation. In this exchange from Wilde's play, "Lady Windermere's Fan", Lord Darlington's humorous candor shows how easily the hot system can take over when the cool system might be asleep. It may not be damaging here, but in organizational life, upsetting others has the potential to diminish LE.

> LORD DARLINGTON. And men? Do you think that there should be the same laws for men as there are for women?
>
> LADY WINDERMERE. Certainly!
>
> LORD DARLINGTON. I think life too complex a thing to be settled by these hard and fast rules.
>
> LADY WINDERMERE. If we had 'these hard and fast rules,' we should find life much more simple.
>
> LORD DARLINGTON. You allow of no exceptions?

> LADY WINDERMERE. None!
>
> LORD DARLINGTON. Ah, what a fascinating Puritan you are, Lady Windermere!
>
> LADY WINDERMERE. The adjective was unnecessary, Lord Darlington.
>
> LORD DARLINGTON. I couldn't help it. I can resist everything except temptation.
>
> (Wilde, 1917)

Summary

This chapter has presented the theoretical foundation for the present thesis. Biotech is a complex knowledge-work industry that exemplifies some of the challenges leaders face in the 21st Century. It inherits uncertainty and complexity from science, the capital-intensive, long-term nature of developing drugs, a highly regulated environment, ethical considerations of balancing patient benefits and patient safety (due to potentially serious side effects for some portion of the patient population), and the same global competition and market forces which all contemporary businesses must face. It requires cross-functional teamwork, and demands leaders to be capable of leading both science and people.

For the purpose of research (acknowledging that it is far from universally applicable), I define leadership as using yourself as a tool to mobilize adaptive work in order to get things done in your field of action by changing how you and your followers think, feel, do, and become. Further, according to the MIT "Leadership in an Age of Uncertainty" (See Fig. 2-3) model, the activities in which leaders engage are *Sensemaking*, *Visioning*, *Inventing*, and *Relating* while using his or her signature approach to leading change.

Kegan's theory of adult development describes possible qualitative shifts in a person's MC from the plateau of a *Socialized Mind*, to a *Self-Authoring Mind*, to a *Self-Transforming Mind*. Fischer's theory concords with these broad outlines, but his *Skill Theory* suggests that one's complexity level can vary meaningfully across different domains, tasks, situations, and contexts. Research evidence suggests that MC makes a difference for LE.

In considering EI, Mayer and Salovey's model fits the literature on emotions and intelligence more closely than Goleman's and Bar-On's models, which overlap with personality traits. The Mayer and Salovey model breaks EI down into 4 branches, including perceiving emotions, using emotions to facilitate thought, understanding emotions, and managing emotions.

According to Kahneman, Mischel, and many others, we experience life through two tightly knit systems: a hot, fast, and reflexive system and a slow, cool, and reflective system. Research on mind and brain using a dual-process approach suggests one possible mechanism of interaction between MC and EI and this has implications for LE.

MC can plausibly help ""cool the now" through cognitive re-appraisal, and distancing oneself from hot stimuli. It might also help us heat the later by reappraising the expected future in an attractive way, as in the way Steve Jobs saw potential for Apple in 1995. By helping leaders to remain calm, MC may make it easier for EI to do the work of regulating one's potentially LE-diminishing emotions. MC may also help one read others' emotions in leadership contexts by helping one process more of the complexities and intricacies of social life.

EI can help leaders exercise self-control that can enable them to keep from reacting or withdrawing in ways that may damage LE. EI can also “heat the later” by engaging the hot system to help us vividly imagine the future--pleasurable positive consequences or negative consequences. And, by keeping the hot system at bay, EI may give a boost to MC by giving the cool reflective system time to boot up so that a leader may use it for engaging in LE-promoting behaviors.

Now that we have reviewed the theoretical context for the study, we turn to Chapter 3, which reviews the study’s methods.

3

Methods

In this chapter, I describe my research methods including: selecting the participants, site, and sampling frame; my measurement strategy; the measures (MSCEIT, LDMA, and LE Measure); sampling; data collection; interviews; data analysis; designing a leadership effectiveness measure; and validity.

Research Question

The following sole research question, which I presented in Chapter1, guided this investigation. *How do mental complexity (MC) and emotional intelligence (EI) contribute, separately or together, to leadership effectiveness (LE)?*

Selecting Participants, Context, Site, and Sampling Frame

I selected biotech R&D as the context for this inquiry because, as described in Chapters 1 and 2, biotech is an archetype of a complex, turbulent, and uncertain 21st-Century leadership context. Within biotech, I selected one R&D division in one company to control, to some degree, for the influence of organizational culture and operating environment (e.g. company stage, regulatory environment, etc.).

To select participants, I began by identifying biotech companies in San Francisco[19] that had at least 15 to 20 mid-level R&D leaders from which I hoped to be able to sample six contrasting and comparable leaders.

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[19] All names, places, and details in this study have been changed to preserve anonymity and confidentiality for both the participating organization and individuals.

I met for coffee with an executive at one such biotech company. He thought the study sounded interesting and potentially beneficial for his firm. After obtaining initial clearances at the company, he put me in touch with HR managers with whom I constructed the sampling frame. I asked the HR leaders to nominate 16 mid-level R&D managers "generally considered to be effective leaders"--a non-descript framing meant to circumvent the HR professionals' use of their own potentially biased selection criteria. I chose to sample from the pool of mid-level leaders so that the case-study subjects would be comparable in level of authority and so they would be more plentiful and presumably easier to access than senior leaders. Unlike senior leaders, it would be feasible to interview their subordinates, peers, and superiors for triangulation of evidence.

The HR managers obtained necessary permission and then contacted the 16 nominees. Eleven of the sixteen people agreed to be contacted by me. All 11 provided their informed consent to complete two psychometric tests online: the 30-45 minute Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT) (Mayer et al., 2002), and the 60 to 90 minute Lectical Workplace Decision Making Assessment (LDMA) (Dawson, 2010). As an incentive and a way of giving back, I offered each participant an optional free coaching session to process the test. Assessments were completed by 9 of the 11 people.

Measurement Strategy: Measures and data used to answer the research question

My measurement strategy was to attempt to answer my research question using evidence from a combination of quantitative psychometric instruments as shown in Table 3-1.

Table 3-1 Measures and data used to answer the research question.

Research Question	*How do mental complexity (MC) and emotional intelligence (EI) contribute, separately or together, to leadership effectiveness (LE)?*
Variable	**Measures and Data**
Mental Complexity (MC)	• **LDMA** – instrument and test results described below. • Triangulated **Leadership Incidents** defined under "Interviews", below, and presented in the cases, Chapters 5 through 10. • Triangulated Coded **Data Chunks**, defined below.
Emotional Intelligence (EI)	**MSCEIT** – instrument and test results described below. • Triangulated **Leadership Incidents** defined under "Interviews", below, and presented in the cases, Chapters 5 through 10. • Triangulated Coded **Data Chunks**, defined under "Interviews", below.
Leadership Effectiveness (LE)	• Leadership Effectiveness Measure", described below. Scores and interpretation are in Chapter 4. • Triangulated **Leadership Incidents** defined under "Interviews", below, and presented in the cases, Chapters 5 through 10. • Triangulated Coded **Data Chunks**

MSCEIT

The MSCEIT (Mayer et al., 2002) is an online test designed to assess a person's EI as defined by Mayer and Salovey's 4-branch model (Mayer & Salovey, 1997; Salovey & Mayer, 1990). The sub-skill in each branch--Perceiving Emotions, Using Emotions to Facilitate Thought, Understanding Emotions, and Managing Emotions--is directly assessed. Test takers are asked about an image and/ or text and must use the skill being tested to answer the multiple-choice question correctly. Correctness is assessed with reference to either a normative sample of 5000 tests or a small expert sample. The two scoring options are highly correlated (r = .93 to .98). I used the expert consensus scoring option[20], as it seemed more fitting to my sampling pool, which included many highly educated individuals.

MSCEIT scores can be interpreted in 3 levels of granularity. There is a total MSCEIT score, which is reported in this thesis. That total score breaks down into two area scores: Experiential EQ and Strategic EQ[21]. Mayer, Salovey, and Caruso explain that, "Experiential EIQ score assesses a respondent's ability to perceive, respond, and manipulate emotional information…." and that Strategic EIQ score assess a respondent's ability to understand and manage emotions…" (Mayer et al., 2002, pp. 18-19). From here

---

[20] The expert sample was drawn from members of the International Society for Research in Emotions (ISRE) attending a meeting in 2000. Membership is open to scientists and other scholars who can demonstrate a serious commitment to research on emotions. The 21 experts consisted of 10 men and 11 women aged 30 to 52 with a mean age of 39.4 (*SD*=6.4) (Mayer et al., 2002).

[21] As shown in Table 2-2 the Area scores are further broken down into branch scores, including Perceiving Emotions, Facilitating Thought under Experiential EIQ and Understanding Emotions and Managing Emotions under Strategic EIQ.

forward, I will refer to Experiential EQ as *reading others' emotions* and Strategic EIQ as *self-control* or *regulating one's own emotions*.

I chose MSCEIT rather than other measures of EI because it is an ability-focused rather than a self-report test. It also has excellent reliability and construct validity. The overall reliability of MSCEIT is r = .91 and showed high-test retest correlations of r =. 86 (Brackett & Mayer, 2003). It has a low correlation with measures of general intelligence (e.g. r = .36 and .38) (Mayer et al., 2002, p.38) suggesting that it is an intelligence, but also represents something different. MSCEIT has low correlations to the five traits measured in the NEO Personality Inventory (Costa Jr. & McCrae, 1992): r = -13 with Neuroticism, r = .04 with Extroversion, r = .33 with Agreeableness, r = -.23 with Openness, and r = .25 with Conscientiousness (Mayer et al., 2002, p.40).

LDMA

Like MSCEIT, the LDMA, also has excellent psychometric properties. The LDMA is an online assessment of the complexity with which a person makes leadership decisions. The test taker is presented with a leadership dilemma and asked to write 5 to 7 short essays in response to that dilemma. Test administrators choose one of several possible dilemmas.

In the "Superstar" dilemma, used in this study, a leader must decide how to respond to an employee who asks to be considered for a management position. The employee is a technical star but others find him intimidating, non-collaborative, and difficult to work with. He has achieved a lot for the organization with high energy, high intelligence, high confidence, and a hard charging, take-no-prisoners attitude toward achievement. Those same aspects of his approach have caused him to intimidate others,

be impatient, and arrogant. He has not been a team player, preferring to be ahead of everyone else. Respondents must decide how to respond given the employee's sincere desire to assume the leadership role and his strong record of achievement on the one hand and his difficult interpersonal style on the other. The respondent suspects the employee could be a star manager if he put his mind to it, but promoting him could also have a very negative impact on the group.

Participants are asked to explain what things are important to consider and why in making a decision about this situation. Are some considerations more important than others and why? What would an appropriate response to this situation be and why? What would another reasonable response be and how does it compare to the first response in terms of risks and benefits? And, what process should a leader follow in responding to this situation and why?

A Certified Lectical Analyst using the Lectical Assessment System (LAS)[22] scores the essay responses to these questions. The test scorer determines the complexity of the concepts used (its implicit conceptual structure) and the complexity of coordination of those concepts (its explicit logical structure).

The LAS is based on Fischer's Skill Theory (K.W. Fischer & Bidell, 2006) (See Table 3-1) and also on Commons et al.'s Model of Hierarchical Complexity (M L Commons, Trudeau, Stein, Richards, & Krause, 1998). The LAS breaks each level down into four phases, so the possible scores between 11 and 12 are 11:1, 11:2, 11:3, and 11:4. As a simplistic short hand, what the scores represent might be thought of as 11:1 (systemic thinking), 11:2 (beyond systemic thinking), 11:3 (approaching meta-systemic

[22] Theo Dawson, Kurt Fischer, Mark Wilson and others developed this assessment system (Theo L Dawson, Xie, & Wilson, 2003).

thinking), and 11:4 (almost fully meta-systemic thinking). To put it another way (see Table 3-2), a score of 11:1 suggests that a respondent exhibited complexity consistent with Kegan's Self-Authoring Mind (4th Order) and a score of 12:1 suggests correspondence to Kegan's Self-Transforming Mind (5th Order).

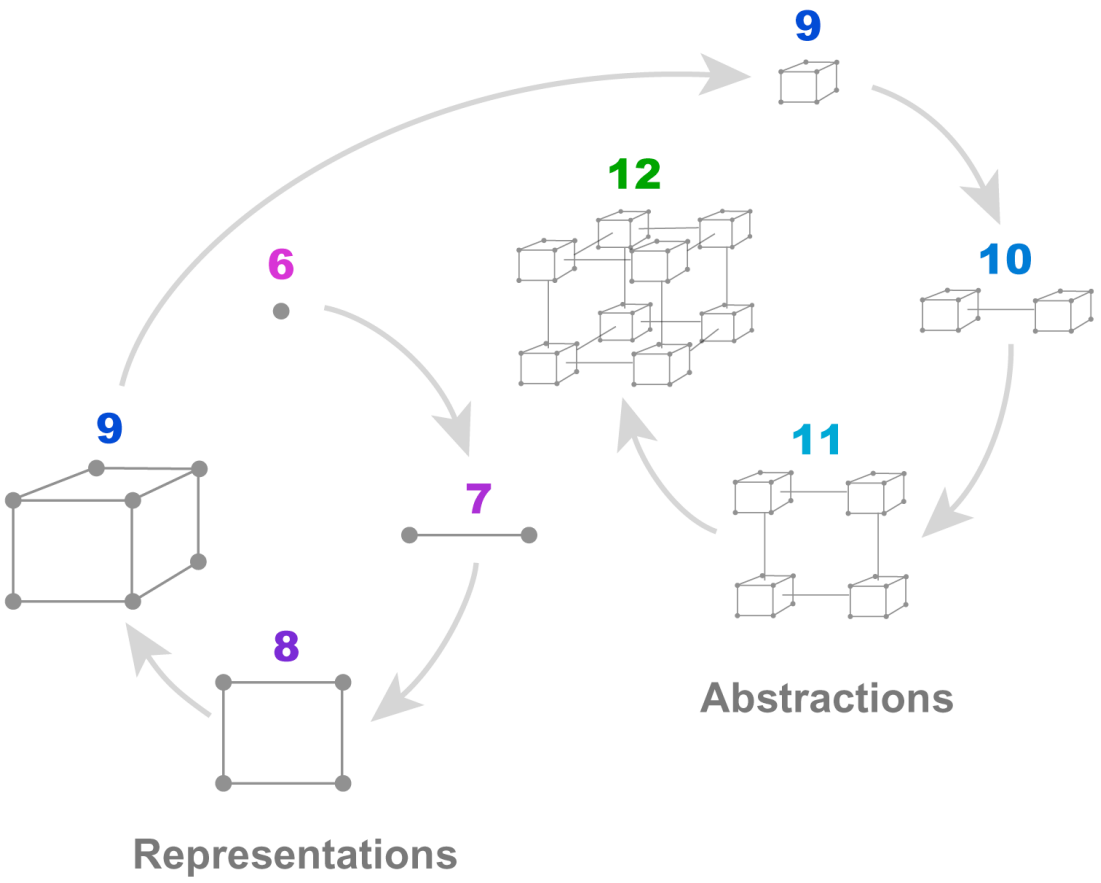

Figure 3-1 Fischer's Dynamic Skill Levels as measured by the Lectical Assessment System represented as a developmental spiral (the last 8 of 12 levels depicted here). Each level consists of four sub-levels. Each level is a new psychological structure that integrates of former ones (T L Dawson, 2013).

Table 3-2.

Concordance Between Fischer's Dynamic Skill Levels, Kegan's Orders of Consciousness, Kohlberg's Stages of Moral Development, Kitchener and King's Stages of Reflective Judgment, and Commons General Model of Hierarchical Complexity.

Fischer's (1980; 2006) Dynamic Skill Levels	**Kegan's** (1982, 1994) Orders of Consciousness	**Kohlberg** (Colby & Kohlberg, 1987) Stages of Moral Development	**Kitchener & King** (Kitchener, Lynch, Fischer, & Wood, 1993) Reflective Judgment	**Commons** (Michael L. Commons et al., 1989) Model of Hierarchical Complexity
9 - Single Abstractions	3rd Order Socialized Mind			Abstractions
10 -Abstract Mappings	3 / 4 -	Stage 3	Stage 3	Formal
11 - Abstract Systems	4th Order Self-Authoring Mind	Stage 4	Stage 4	Systematic
12 - Single Principles	5th Order Self-Transforming Mind	Stage 5	Stage 5	Meta-Systematic

A number of studies have demonstrated that the LAS is a valid and reliable general measure of intellectual development in adulthood (T. Dawson, 2004; 2002; 2003; Theo L. Dawson & Gabrielian, 2003; Dawson-Tunik, 2004). Studies of correspondence between the LAS and other developmental scoring systems (such Kohlberg's, Kitchener and King's and Commons') reveal agreement rates of 85% within half a complexity level (T. Dawson, 2004; Theo Linda Dawson, 2002; Theo L Dawson et al., 2003). Inter-analyst agreement rates using the LAS have been 80% to 97% within half a complexity level (T.

Dawson, 2004; Theo L. Dawson & Gabrielian, 2003; Dawson-Tunik, 2004). As well, Rasch scaling, which provides a reliability estimate equivalent to Cronbach's alpha, has yielded reliabilities of over .95 (Theo Linda Dawson, 2002; Theo L Dawson et al., 2003; Dawson-Tunik, 2004).

I expected (as turned out to be the case), due to their high level of education and the complexity of biotech that respondents would mostly score between 11 (systemic thinking) and 12 (meta-systemic thinking) on the LAS scale.

Test Results – Drawing the Sample of Six Primary Case-study Subjects

The test scores of the nine people who completed the tests appear in Table 3-3.

Table 3-3

Participant scores on the LDMA and MSCEIT and suggested grouping. The names of the primary case-study subjects ultimately sampled are in bold type.

Pseudonym	Complexity Phase Scores (LDMA)	Overall EI Score (MSCEIT)	Suggested Grouping
Steve	11:4	93	High MC / Moderate EI
Neil	11:3	95	High MC / Moderate EI
Bob	11:3	100	High MC / Moderate EI
Andrea	11:2	95	Moderately high MC / Moderate EI
Jennifer	11:2	88	Moderately high MC / Moderate EI
LiChong	11:2	73	Moderately high MC / Low-Moderate EI
Laura	No Score	103	? / Moderate EI
Beth	11:1	94	Unable to participate as case-study
Sanjay	10:2	54	Low MC / Low EI – Based on inadequate time taken to complete tests. Scores unusable.

After receiving these scores from the testing company, I conducted feedback sessions to process the scores with all interested participants.

I analyzed these scores in consultation with my thesis advisers. We noted that the EI scores were lower than expected and had little spread. We also noted that three participants scored higher on MC (Steve, Neil, and Bob); three participants scored moderately high on MC (Andrea, Jennifer, LiChong); one did not complete the test (Laura); one had a slightly lower score (Beth). One participant had suspiciously low scores on both tests (Sanjay) and further investigation revealed that he did not take adequate time to complete either test properly.

The participants' scores had a mean of 96.625, considered below average, and a standard deviation of 9. (The normalized curve used for scoring has a mean of 100 and a standard deviation of 15). I resolved to investigate, through subsequent interviews, what that might mean. I wondered if the scores related to some systematic feature of the participants (fitting a stereotype of scientists, for example, more comfortable with science than people), or whether there was some problem with the measure or with the self-administration (i.e. filling out online) of the test. In any case, for the purpose of inclusion in the second, interview, phase of the study, participants' scores only needed to be similar to each other's. These scores fit that criterion.

The LDMA scores shown in Table 3-3 suggested two closely neighboring modes: high complexity and moderately high complexity. As with MSCEIT, I resolved to further interpret the participants' MC with the benefit of interview data. For the purpose of the study, however, these two groupings suggested that I might be able to compare the strengths and limitations of those who scored 11:2 (about half way between the Self-Authoring Mind and the Self-Transforming Mind in Kegan's theory) versus those who scored 11:3 (closer to Kegan's Self-Transforming Mind).

I had hoped to have more spread between the two groups, such as one group with scores of 11:1 and another group with scores of 11:4. This is a weakness in the ultimate sample drawn and may be a weakness in this study.

After inviting individuals to continue on to the interview phase of the study, the following grouping of willing participants resulted. The first group consisted of Steve and Neil who could be described as scoring "high" on MC (Scores of 11:3 to 11:4) and "moderate" on EI. Bob would also have fit into this group, but was not willing to participate in the interview phase. Laura agreed to participate and to complete the LDMA, but never did and therefore could not be placed into either of the two groups. However, as will be seen in Chapter 8, hers proved to be an interesting story to tell. The second group, consisting of Andrea, Jennifer, and LiChong could be described as "moderately high" on MC (Scores of 11:2) and "moderate" on EI.

Interviews

I conducted initial interviews with Steve, Neil, Andrea, Jennifer, LiChong, and Laura. I followed this with interviews of two subordinates and two superiors for each. Finally, I conducted a follow-up interview with each primary subject. I took a number of steps to reduce bias in this process. The purpose of the interviews was to provide data on ways in which each leader exhibited MC, EI, and LE, and to provide data for the LE Measure, described below.

To begin, I asked each case-study subject to provide a list of names for 4 or more subordinates, from which I would draw 2. This approach aimed to prevent subjects from only suggesting subordinates likely to say good things about them. I also asked for the name of each case-study subject's manager and one or more other senior leaders who

could talk about his or her leadership. I stressed that it would be better to have more than two superiors to choose from, in order to avoid a biased selection.

To further reduce bias, I designed the semi-structured interview protocol, shown in Figure 3-2, to produce stories about *incidents* (Crandall, Klein, & Hoffman, 2006; Flanagan, 1954). I asked respondents to tell stories about incidents and probed for "facts" about what happened, how people behaved, and what the respondent thought, felt, and experienced.

To deal with the possible reluctance of respondents to say anything negative about themselves or a coworker, for each pre-formulated interview topic, I employed the following probe from researcher Jay Conger (1998). "Even the best leaders have room for improvement. If there was one thing that (*case-study subject)* could do to get better at (e.g. motivating others) what would that be?

These probes turned out to be very effective during the interviews. I found that most informants were, with more or less probing, willing to balance their positive comments about the primary subjects with quite frank assessments of areas in which they believed the person could do better as a leader. The probes also addressed the problem of presentational data (Van Maanen, 1979, p. 4) – things people say to impress the interviewer.

Figure 3-2

Semi-structured interview protocol[23] used for interviews with primary subjects, their subordinates and their superiors.

---

1. Introduction – Background

(a) Please tell me about your professional and educational background.

---

2. Motivating others

(a) How would you describe *case-study subject's* approach to motivating others?

(b) Can you think of an example?

(Probe rich examples for more detail. Or, ask for further examples.)
(Probe for evidence of leadership effectiveness, emotional intelligence, and mental complexity without using those words.)

(c) Even the best leaders have room for improvement. If there was one thing that *case-study* could do to get better at motivating others what would that be? (Probe *subject* for examples and evidence of leadership effectiveness, emotional intelligence, and mental complexity in each example.)

---

3. Inspiring a shared vision

(a) How would you describe *case-study subject's* approach to inspiring a shared vision?
(b) and (c) same as for 2

---

4. Delegating and empowering others

(a) How would you describe *case-study subject's* approach to inspiring others, delegating to others, or empowering others?

(b) and (c) same as for 2

---

[23] One exception to this rule is that the follow-up interview with each case-study subject was based on topics that needed to be addressed in order to fill in gaps in the data or clarify issues that had been raised.

5. Challenging existing processes

(a) Can you describe ways that *case-study subject* works to improve upon or change the way things are done? Innovate? Tries experiments and learns from them?

(b) and (c) same as for 2.

---

6. Managing conflict

(a) Can you tell me about *case-study subject's* approach to managing conflict or handling difficult situations?

(b) and (c) same as for 2.

---

7. Leadership effectiveness

(a) How would you rate *case-study subject's* leadership effectiveness on a scale of 1 to 10, where 1 is the lowest and 10 is the highest? Why?

(b) If respondent indicates that he or she would give different ratings for different aspects of leadership, talk about one at a time, clarifying what aspect of leadership the person is rating and why the differential ratings are given.

(c) As appropriate, ask for examples and stories to justify the ratings or confirm connections between the ratings and examples already given.

---

8. Is there anything else about *case-study subject's* leadership that we did not talk about, that you would like to add?

The topics in questions 2 through 5 were drawn from Kouzes and Posner's (2003) five practices of leadership. The topic of managing conflict in question 6 was designed to illuminate each leader's MC and the quality of her EI under stressful conditions. Finally,

Question 7 aimed to gauge informants' overall sense of the case-study subject's LE and to provide an opportunity for the informant to zero in on the leader's best strengths and biggest limits.

The questions succeeded in eliciting rich and detailed reports of case-study subjects' leadership behavior. They prompted respondents to recall and reflect deeply upon events. The interviews also revealed a lot about the leadership thinking of subordinates and superiors.

Data provided by superiors proved very useful in answering my research question in an unexpected way. By describing the limits of the primary subjects' effectiveness across a variety of leadership situations and describing how it could be enhanced, often telling stories about his or her own leadership, the senior leaders emerged as models of highly effective leadership. Due to the study design, it was not always possible to triangulate these stories of senior leadership, but their claims where often corroborated by at least one other informant.

Data Analysis

Even when repeated by the same person at a different time, analysis of data is likely to produce different conclusions[24]. Nonetheless, my goal was to create repeatable procedures for data analysis so that, in theory, another person could follow them and get similar results. I iterated among a number of different data analysis activities including,

[24] Kahneman (2011, p.225) reports that 41 separate studies of judgments by auditors, pathologists, psychologists, managers, and other professionals suggests that reevaluations of complex data by the same person, even when performed within a few minutes, is often unreliable.

identifying and analyzing leadership *incidents*, memo writing, coding, data reduction and display (Miles & Huberman, 1994).

While conducting the interviews and at each step in the analysis, I focused on leadership *incidents* (Crandall et al., 2006; Flanagan, 1954). I asked respondents to illustrate their claims about the subject's leadership with examples or stories (incidents). Respondents' descriptions of behaviors, thoughts, and experiences constituted units of meaning expressed in words, sentences, and paragraphs known as *chunks* (Miles & Huberman, 1994, p. 56).

I attached one or more codes to each chunk, using the process described below. The coded chunks comprised the "facts" of the incidents.

Memo writing was another key tool in the data analysis. Immediately after each interview, I spent 30 - 60 minutes writing a reflective memo including my emerging thoughts about the separate or joint impact of MC and EI on the relevant primary subject's LE. I also noted any significant observations, such as the location and state of the informant's office, observations of body language, facial expressions, or tone of voice. I completed these post-interview memos with a list of takeaways and questions forward– points for clarification, things to make sense of, and chunks of data to triangulate with other data.

Upon returning from a field visit, I would often write new analytic memos. The purpose of writing these analytic memos was to tap the freshness of ideas and sort out conflicts in my thinking as suggested by Glaser & Strauss (2007, p.107). These memos were works-in-progress and I returned to them often when promising or confusing ideas arose.

I kept a Theme Log and a Theory Log as an ongoing data structuring and reduction technique (Conger, 1998). In the Theme Log, I kept track of emerging themes and facts related to my research questions. I began to notice patterns of behavior that limited LE associated with insufficient MC and/or EI. These became 7 different themes, which I ultimately called the 7 Blind Spots introduced in Chapter 1. In the Theory Log, I kept track of my own theoretical ideas and their connection to the separate or joint effect of MC and EI on LE.

I transcribed and coded each interview. I developed codes to tag meaningful chunks of data. I began with a start list of codes (Miles & Huberman, 1994) from the literature presented in Chapter 2 with codes such as "Systems/Self-Authoring" and "Meta-systemic/Self-transforming". I included codes for the dimensions of the LE measure such as "*Sensemaking*" and "*Relating*," and leadership contexts as in "team" and "cross-functional team" to enable me to score the LE measure for each primary subject.

I worked with another social science scholar to check my coding logic and reliability at two points during the analysis. The first code checking occurred early in the coding process. She helped ensure that the codes made sense and were being applied reliably. The second code checking, described below, consisted of testing the LE measure for interrater reliability (Miles & Huberman, 1994).

To reduce long interview transcripts and make analysis tractable, I extracted coded chunks of interviews into edited interviews and thematic memos. In turn, I reduced these edited interviews and memos into within-case and cross-case displays that allowed me to see connections across the interview data.

In drawing and verifying conclusions from data, I tried to be mindful of tactics described by Miles and Huberman (1994, pp.262-276), such as considering disconfirming or negative evidence, considering the meaning of outliers or surprising evidence carefully, and considering potential biases in the interview data.

Leadership Effectiveness Measure

The 6 dimensions of the LE measure (see Table 3-4) I designed for this research are *Sensemaking, Relating, Visioning, and Inventing*, and *Change Signature*, plus *Team Performance.* The first 5 dimensions are drawn from "Leadership in an Age of Uncertainty" (Ancona et al., 2005) presented in Chapter 2 (MIT framework).

A leader is rated on each dimension or sub-dimension in three different leadership contexts: a leader's own *team*, her *cross-functional teams*, and the wider organization.

Ratings for each of the measure's 24 items are made on a five-point Likert scale to determine the rater's determination of how well the data support the criteria under "*this is a strength if*". (1=strongly disagree; 2=Disagree; 3=Neutral; 4=Agree, and 5= Strongly Agree.) Ratings are based on the "facts" of *incidents*--what happened; how people behaved; and what people thought, felt, and experienced. Ratings should be supported by 3 chunks of data. When 3 chunks are not available, the rater can base ratings on 1 or 2 compelling chunks. All the data used to score this measure are from the interviews.

Scores are computed as follows. After all 24 items are completed, an average of scores for the three contexts (team, cross-functional team, organization) is calculated for each of the 6 dimensions. For *Relating*, which has 3 sub-dimensions, *Inquiry, Advocacy, and Connecting* averages are computed for each sub-dimension, and then an average of the sub-scores become the averages for the *Relating* scores. An overall raw score is

Table 3-4.

Leadership Effectiveness Measure

Item	This is a strength if					
Sensemaking	Leaders are able to construct or co-construct and communicate a clear, compelling, and sufficiently complex map of current reality - situations, the organization, and the environment--using words; they involve others in the process; they conduct it as a learning process; the resulting dynamic maps are adaptive to the situation, the organization, and the environment; the leader communicates effectively, perhaps using stories and metaphors.					
		Rating				
1.	Team	1	2	3	4	5
2.	Cross-Functional Teams	1	2	3	4	5
3.	Organization	1	2	3	4	5
Relating						
Inquiry	Leader has the ability to listen and understand what others are thinking and feeling; tries to understand how the other person has moved from data to interpretation, to assessment, rather than simply reacting to the assessment; Leader can suspend judgment and listen without imposing his or her point of view. Argyris and Schön (1996), Senge (1990)					
4.	Team	1	2	3	4	5
5.	Cross-Functional Teams	1	2	3	4	5
6.	Organization	1	2	3	4	5
Advocacy	When necessary, leader is able to take a stand and try to influence others while also being open to other views. Leader is able to take responsibility for own biases and see when he/she overreacted based on insufficient data.					
7.	Team	1	2	3	4	5

8.		Cross-Functional Teams	1	2	3	4	5
9.		Organization	1	2	3	4	5
	Connecting	Leader is able to build bonds, collaborative relationships, and trust.					
10.		Team	1	2	3	4	5
11.		Cross-Functional Teams	1	2	3	4	5
12.		Organization	1	2	3	4	5
Visioning		Leaders communicate an exciting and inspiring vision that gives meaning to work; leaders inspire others to buy into the vision and realize they have the abilities needed to achieve it; leaders create vision in many areas; leaders embody the values and ideas in the vision.					
13.		Team	1	2	3	4	5
14.		Cross-Functional Teams	1	2	3	4	5
15.		Organization	1	2	3	4	5
Inventing		Leaders implement vision by creating new ways of working -- creating new structures, processes, and ways for individuals and groups to interact to realize the vision-- and by recruiting, retaining, and developing people.					
16.		Team	1	2	3	4	5
17.		Cross-Functional Teams	1	2	3	4	5
18.		Organization	1	2	3	4	5
Change Signature		Leader is effective in combining his or her unique personality, skills, experience, approach, and identify into a signature style to make change happen.					
19.		Team	1	2	3	4	5

20.	Cross-Functional Teams	1	2	3	4	5
21.	Organization	1	2	3	4	5

Team Performance	Leader's teams achieve good performance in terms of quality and/or quantity and/or efficiency, taking into account the nature of the group's task and the leader's potential influence due limiting factors such as role and the context of the organization and its environment.					
22.	Team	1	2	3	4	5
23.	Cross-Functional Teams	1	2	3	4	5
24.	Organization	1	2	3	4	5

Total LE Score	
Average LE Score	

calculated by summing the all scores and the overall average score is calculated (raw score divided by 6).

Fit with the Leadership Literature

As described in Chapter 2, the MIT framework attempts to integrate prior leadership literature. It touches on many of the themes addressed in reviews of the leadership literature by prominent scholars in the field (Chemers, 1997; House & Aditya, 1997; Yammarino, Dionne, Chun, & Dansereau, 2005). For example, Francis Yammarino, a former editor of *The Leadership Quarterly,* and his team of researchers conducted a "state of the science" review in which they organized leadership research into 17 theoretical sub-categories (Yammarino et al., 2005). Most of the 17 categories were well represented by one or more dimensions in the MIT framework. I considered the fit between the MIT framework and reviews of the literature to meet a grounded-in-the-scholarly-literature standard.

A Multi-level View of Leadership

I assessed each dimension on the LE Measure on 3 levels—Team, Cross-Functional Teams, and the whole Organization—for two reasons. For one thing, as advocated by Yammarino, a complex evaluation of LE requires a multi-level approach (e.g. small groups, larger groups). Secondly, early in the data collection I noticed differences in each primary subject's LE depending on whether the unit of analysis was that leader's team, a cross-functional team, or within the organization and beyond.

Leadership Effectiveness as Team Performance

In addition to the importance of a multi-level view, a number of leadership scholars have noted that leadership effectiveness should, in part, be based on the performance of a leader's group (Kaiser, Hogan, & Bartholomew, 2008). In order to make the performance of different groups comparable, scholars recommend comparing them on the quality and/or quantity and/or efficiency of the team's output, taking contingencies into account (Chemers, 1997; Hackman, 2002). As a result, I included in the LE Measure an item where the quality or quantity and efficiency of a leader's teams at the various levels (team, cross-functional team, and network) are scored.

Designing the LE Measure for Predictive Validity

To avoid an ad-hoc and arbitrary approach to scoring the LE measure, I drew upon the long research tradition which began in 1954 with Paul Meehl's *Clinical vs. Statistical Prediction: A Theoretical Analysis and Review of the Evidence* (1954). Meehl reviewed 20 studies which showed that combining a few ratings according to a straightforward algorithm often resulted in more accurate predictions than subjective professional judgment about important outcomes, such as how students would fare in college, violations of parole, criminal recidivism, and professional training. Meehl explained that, surprisingly, professionals' predictions are often biased. Professionals focus over-confidently on their insights, theories, and expertise, when matters such as Bayesian decision rules, representative samples, and accurate probabilistic analysis are what are required for reliable prediction. Since Meehl published his seminal work, 200 or more studies have largely confirmed his findings, in an ever-widening array of contexts, including medical clinical predictions, credit risks, and career outcomes to name a few.

As in Meehl's work, these studies showed that trained professionals are sometimes unaware of seemingly irrelevant factors that bias their predictions and make them unreliable. In addition, life outcomes are simply influenced by too many complex and perhaps unknowable factors, to predict accurately.

In a 20-year program of research, University of Pennsylvania psychologist Philip Tetlock (2005) interviewed 284 expert forecasters about future economic and political events. His findings supported Meehl's findings in a very big way. "When we pit experts against minimalist performance benchmarks—dilettantes, dart-throwing chimps…" Tetlock reports, "…we find few signs that expertise translates into greater ability to make either "well-calibrated" or "discriminating" forecasts" (2005, p. 20). Experts tend to be overconfident in their predictions (and reluctant to revise them when proven wrong) when they are no better at making predictions than those outside their profession who are without their extensive knowledge.

While many have replicated Meehl's work, Robyn Dawes has taken it even further. In a well-known 1979 article, "The Robust Beauty of Improper Linear Models in Decision Making", Dawes showed that a simple algorithm could often predict as well as an optimally weighted statistical model. According to Dawes' research, a few well-chosen variables, equally weighted, can be quite good predictors of significant outcomes. These "improper linear models" often worked as well as proper, optimally weighted ones based on rigorous statistical methods. (It may be worth noting that neither the proper nor the improper models predicted very accurately.)

"Quite good" prediction in this context might mean a validity of .20 to .30, that is a correlation of .20 to .30 between the test result and the actual outcome on the

variable(s) measured by the test. This is not great, but, surprisingly, it is better than expert professional judgment is likely to be.

Persuaded by Meehl's and Dawes insights, I looked to develop a scoring scheme for the LE Measure that would include a few well-chosen variables to be weighted equally. I found advice for how to do this Daniel Kahneman's recommendation for designing job interview procedures in the spirit of Meehl and Dawes (2011, p. 232).

Kahneman advises: choose about 6 predictors (as independent from each other as possible); list questions for coming up with a score on a 5-point scale for each predictor; score based on facts rather than intuition; and score all people being compared on one dimension at a time (i.e. score everyone on the first dimension, then score everyone on the second dimension, and so on) to avoid halo effects (e.g. good scores on items positively influence subsequent scoring.) The 6 dimensions of the LE measure (see Table 3-4) fit Kahneman's advice. In assessing whether these were the "right" six predictors, I took comfort in Dawes suggestion (1979) that people can often have a good sense of which predictors to choose and in what direction they might bear on the outcome. Admittedly, the dimensions of the LE Model are not nearly as independent from one another as Kahneman might like.

Following Kahneman's suggestion that the ratings be based on facts rather than intuitions, ratings are based on triangulated *leadership* incidents and *coded data* chunks as described above. As noted above, the triangulated data is all drawn from the interviews. As already mentioned, to prevent halo effects, I scored all leaders on one dimension at a time.

Finally, in coming up with a procedure for arriving at a single raw score on the measure I followed the advice of Meehl and Dawes and kept it uncomplicated. As Dawes famously advised, "The whole trick is to decide what variables to look at and then know how to add" (Dawes & Corrigan, 1974, p. 105). The application of this principle can be easily seen in the presentation of the scored leadership measure at the end of Chapter 3.

Validity

As Angela Duckworth and David Yeager point out, "Perfect, unbiased, unfakeable, and error-free measures are an ideal, not a reality" (Duckworth & Yeager, 2015). They explain that the validity of a measure is, "…not a feature of a measure itself but instead a characteristic of the measure with respect to its particular end use". Each of the measures used in this study has imperfections.

As ability tests, the results from the MSCEIT and the LDMA may suffer from a task impurity (Miyake & Friedman, 2012) problem, the tendency of some ability tests to detect things other than the variable in question.

One possibility with MSCEIT and especially for LDMA (that takes at least 90 minutes to complete) is that the test results reflect how much time these very busy people took to complete the test. If some subjects had taken more time, perhaps their scores would have been higher. These speculations are due to the fact that triangulated qualitative data sometimes gave the impression that a leader functioned at higher levels of EI and/or MC than the MSCEIT or LDMA suggested.

It's also possible that the MSCEIT and LDMA picked up differences due to gender or cultural background. Andrea and Jennifer's scores on the LDMA of 11:2 (moderately high) could be associated with their nurturing style. Perhaps rather than

displaying their most complex ideas and organization of ideas, which the LDMA is intended to elicit, their responses reflected care. They may have focused more on employee concerns about being managed by a difficult person rather than maintaining that concern in tension with the need to solve the puzzle of what to do about the high-achieving, but abrasive, performer who wants to become a manager.

Similarly, LiChong's Chinese cultural background with its emphasis on harmony might have biased his response to the Superstar Dilemma. His focus may have been on harmony in this particular situation. In other situations he might show more complex reasoning when making less conflicted promotional decisions.

The musings about the task impurity problem are just that. I'm not asserting that these dynamics necessarily existed.

Many researchers concerned with the adequacy of measures for diagnosis and selecting people for educational or work opportunities (e.g. Gardner, 1999; Howard & Bray, 1988) suggest that one strategy for overcoming the imperfection of measures is to use multiple methods (e.g. quantitative and qualitative) and multiple measures to assess the same skills and abilities.

I followed this advice and, as described above, used quantitative and qualitative data to assess MC, EI, (to supplement LDMA and MSCEIT scores) and LE. As well, I designed the LE Measure and its scoring based using principles from Meehl and Dawes' work; and following steps suggested by Kahneman in architecting the LE Measure. All 1-5 ratings on the LE Measure and all other conclusions drawn in this study rely on triangulated leadership incidents and coded data chunks (Miles & Huberman, 1994).

To evaluate these data chunks, I employed a number of critical thinking techniques to address bias and avoid unreflective acceptance of evidence including: thinking about researcher effects; making sense of outliers and surprises; testing evidence against extreme cases; searching for disconfirming evidence; and checking evidence with informants (Miles & Huberman, 1994). In order to avoid halo effects, in scoring the LE Measure, I scored one dimension at a time for all 6 primary subjects.

In addition, I worked with another social science scholar, with a doctorate in a different field, to establish interrater reliability for the LE Measure. I trained her (the scorer) by reviewing the theoretical background behind the measure, teaching the LE instrument using the procedures above, and practice scoring. I provided data chunks from two different subjects. We reviewed the scorer's ratings on these practice items in depth and there were very few misunderstandings of the items and how to score them. Any misunderstandings were clarified easily. At this point, I considered the scorer trained.

From the sample of 6 primary case-study subjects, I provided the data chunks I used to score the LE Measure for each subject. The data chunks were drawn from the edited and coded interviews, and in aggregate, represented approximately 33% of the data I analyzed in the study.

In the first round, the scorer completed rating the first three dimensions of the LE Measure for both subjects. Complete agreement between the scorer's ratings and my ratings for the individual in the first round was 67%. We agreed on 10 of the 15 items in the first three dimensions. Agreement within one point on the 5-point rating scale was 87%. We differed by more than one point on the scale on only 2 of the 15 items. The

scorer and I discussed our disagreement over the 5 items on which there was not complete agreement and had little difficulty resolving our differences.

In the second round, the scorer completed the rating for the last three dimensions of the LE Measure. We agreed on 7 of the 9 items for 78% complete agreement. Agreement within one point on the 5-point rating scale was, again, 89%, on 8 of the 9 items. We discussed our disagreements and, as before, had little difficulty resolving them.

While there are no universal rules when it comes to interrater reliability a typical guideline found in the psychological literature is that complete agreement should be 70% or greater (Stemler, 2004). Often, one finds attempts to approach 70 - 80% complete agreement between two raters. In an article on ratings on principal and teacher performance, the authors point out that, where ratings are consequential, one would like to see a minimum of 75% complete agreement (Graham, Milanowski, & Miller, 2012). For the present study, my goal was to obtain 80% complete agreement between two raters. Based on standards in the literature, and the fact that the stakes for the LE Measure at this point (it can be developed and strengthened in the future) are not high it seems reasonable that, with complete agreement between two raters at or approaching 80%, items in the leadership effectiveness measure are worth retaining. With complete agreement well below 80%, it might have been worth dropping items from the measure until 80% agreement, or close to it, could be attained.

I cautiously accepted the results of the interrater scoring as evidence of an acceptably robust measure for the purposes of this dissertation. My caution is related to the fact that some of the agreement might be expected due to chance.

In concluding this methods section, I return to Kahneman's counsel that correlation of .20 to .30 between the prediction from a test result and the actual outcome on the variable(s) measured by the test is "quite good". For the purpose of the present study, designing a LE Measure with an ability to predict how effective a leader will be with predictive validity of .20 to 30 is useful. It enabled me to explore my research questions and to produce findings that can inform leadership education.

Finally, if the LE Measure from this study, or a refined version of it, were to be used in the future, it would be as a tool for generating awareness, not diagnosis, and for leadership education not for performance evaluation.

Part II

Six Mid-Level Biotech R&D Leaders

4

Introduction to the Cases

As described in Chapter 3, I set out to compare two groups of biotech leaders, with one group higher on MC than the other and both groups similar on EI, in order to tease out the separate or joint contributions of EI and MC to LE for the subjects. I sampled from a pool of biotech R&D leaders recommended as "generally considered to be effective leaders." I then used an EI test and an MC test to screen from this sampling frame for individuals to populate the two comparison groups. Unfortunately, the ultimate sample was not what I had hoped for. The 6 primary case-study subjects were, as hoped, similar on EI. But, they were not different enough on MC to make a comparison meaningful.

I wished to test my postulate that the complexity of biotech R&D leadership creates leadership demands complex as Kegan's Self-Authoring Mind. I hoped for one group with developmental scores in the Self-Transforming range and the other in the Self-Transforming spectrum. But the two groups only differed on MC by 1 or 2 discriminations (each level in Kegan's scheme is comprised of 5 discriminations) and all tested at developmental positions on the spectrum between Kegan's Self-Authoring Mind and Self-Transforming Mind. Moreover, there was as much difference on MC within the two groups as between them. Without enough contrast between the groups, any qualitative comparison based on their test scores would be inconclusive. Therefore, I needed to take a new approach.

My revised approach was to examine the leaders on a case-by-case basis rather than conducting a comparison between two groups of cases. This kind of qualitative case-

study approach can yield interesting cross-case patterns and insights (Miles & Huberman, 1994) that are plausible and potentially educative. This is an explanation building approach (Yin, 2003). It can raise questions or generate grounded-theory hypotheses (Glaser & Strauss, 2007) about the contributions of MC and EI to LE, but it cannot answer those questions. Such questions must be answered in future research.

More specifically, the case studies present a rich body of information about leaders in a complex context. There are interesting observations and interpretations to be made about the complexity of each person's leadership thinking and behavior, their emotional self-control abilities, and skills in reading others' emotions. However, I am not yet in a position to make any strong claims about the relationship between MC, EI, and LE for these leaders.

In regards to the definition of leadership presented in Chapter 2, the 6 leaders in the present study are all able to effectively mobilize their followers to get things done. They work intelligently to invent strategies, techniques, and tactics for leading change; they attempt to change the thoughts, feelings, and behaviors of others in order to get things done and to help others adapt to an unknown future.

Each of the 6 case-study subjects has many LE strengths and some limitations. The complexities and intricacies that each leader sees and reflects upon and the emotional dimensions of leadership that each manages or mangles are different. What *is* consistent across the 6 cases is that there are certain contexts (team, cross-functional teams, or organization) and domains (technical, interpersonal, organizational) in which each leader succeeds or struggles. In most situations each of these impressive individuals is reflective, able to see leadership challenges as if from a distance (as object, in Kegan's

terminology) and to choose adaptive LE behaviors. However in certain contexts, domains, or situations—different ones for each leader—they tend to be immersed in (are subject to, in Kegan's language) leadership challenges and seem fairly powerless to do anything other than react emotionally to them. Their cool, reflective system attenuates, the hot emotional system dominates and, rather than enacting well considered, intentionally planned, or strategic leadership behavior they react or withdraw unreflectively in ways that diminish LE.

While the particular contexts and situations in which each leader's hot system sometimes hijacked their cool system differed, I found 7 patterns of behavior--reactions or withdrawals--when a leader's effectiveness dipped. I call these behavioral patterns 7 leadership blind spots. The blind spots reveal themselves when a leader is immersed in a field of action and cannot see how certain behaviors hurt LE. Each subject exhibits at least one blind spot, with significant variability in the conditions under which each struggles. Using the acronym BLINDSPOT as a mnemonic device, the patterns of ineffective leadership behavior are:

Being forceful
Lacking Visibility
Insecure Authority
Need to be Political
Distance and Decenter
Stop Enabling
Problems **O**n **T**eams

Table 4-1 *- Study participants from the R&D Division at SF Therapeutics*

Graham VP, Medical Research *(Neil's Superior)*	**Jerry** VP, Pharmacology *(Neil and LiChong's Manager)*			**Lisa**, SVP, Regulatory *(Laura and Steve's Superior)*			**Suzy,** VP, Drug Safety *(Steve's Manager)*	**Sarah**, VP, Statistics *(Andrea's Manager, Jennifer's Superior)* **Paul,** Investigator, Biometrics *(Andrea's Superior)*			**Hector**, SVP Clinical Trials *(Jennifer's Manager)*
Neil, Sr. Director Pharmacology		**LiChong** Sr. Director, Pharmacology	**Trichy,** Sr. Director, Toxicology *(LiChong's Peer)*	**Laura**, Sr. Director, Regulatory & Safety	**Steve**, Sr. Director Regulatory			**Andrea**, Sr. Director, Statistical Analysis	**Jennife**r Sr. Director, Clinical Trials		
Vasil, Quantitative Modeling *(Neil's Subordinate)*	**Liu** Discovery R&D *(Neil's Subordinate)*	**Elsa**, Scientist, Drug Discovery *(LiChong's Subordinate)*	**Riji**, Scientist, Drug Discovery *(LiChong's Subordinate)*	**Ashok** Medical Director, Clinical Trials *(Laura's Subordinate)*	**Dan** Medical Director, Clinical Trials *(Laura's Subordinate)*	**Jackie** Director, Regulatory *(Steve's Subordinate)*	**Danielle** Director, Regulatory *(Steve's Subordinate*	**Tom** Director, Statistical Analysis *(Andrea's Subordinate*	**Gwen** Director, Statistical Analysis *(Andrea's Subordinate*	**Patricia** Associate Director, Clinical Trials IT *(Jennifer's Subordinate)*	**Amy** IT Analyst *(Jennifer's Subordinate)*

I describe these blind spots in Chapter 11.

Table 4-1 displays the 6 case-study subjects and the superiors, subordinates, and peers who were interviewed for this study[25].

In order of appearance, the cases are LiChong (Sr. Director, Pharmacology), Andrea (Sr. Director, Statistical Analysis), Neil (Sr. Director, Pharmacology), Laura (Sr. Director, Regulatory and Safety), Jennifer (Sr. Director, Clinical Trials), and Steve (Sr. Director, Regulatory).

LiChong

LiChong is a chemist with an international reputation and a key member of SF Therapeutics Drug Metabolism and Pharmacokinetics (DMPK) group. He displays very high complexity in the scientific domain and displays good complexity, self-control, and ability to read others' emotions as a leader of his team. He is a strong team leader, a strong scientific leader, and leads well across the organization and his field.

LiChong's blind spots are Being Forceful, Distance and Decenter, and Problems On Teams. Despite his impressive scientific excellence, his strengths in mentoring, and the high performance of his team, he can lose his cool while working on cross-functional drug programs teams. When his recommendations are questioned or when he thinks his expertise, roles, and responsibilities are being impinged upon, he can become forceful. He's very direct, sometimes raising his voice. He doesn't listen to others. He has a hard edge with others.

[25] To preserve anonymity and confidentiality, their names, jobs, and other details have been changed.

To tell the story from the perspective of the hot and cool system as it relates to MC, EI, and LE, it's plausible that at these times, his hot system activates, he loses self-control, and becomes unreflective; he is unable to engage the cool, complex thinking and resulting behavior he uses in leading his own team. All of this reduces his LE.

Andrea

Andrea is a manager in biostatistics. She loves people and her job. In her view, biostatisticians get to determine whether a drug works or not because they analyze the data on its safety and efficacy. The analyses produced by her department are used in reports to regulators such as the FDA.

Andrea shows many LE strengths. She builds relationships and networks throughout the organization. She skillfully leads organizational work -- adeptly cultivating strong relationships on which she can rely. Her blind spot is Stop Enabling.

A possible interpretation of this behavior from the point of view of MC, EI, and LE is that, when it comes to dealing with difficult people problems like poor performance, she does not show a complex-enough perspective on the problem. She does not employ a helpful LE insight from negotiation theory (Fisher & Ury, 1981): separate people from problems. Using this principle requires, I would assert, a Self-Authoring level of MC. At these times, Andrea's behavior is reminiscent of the Socialized Mind, where one would be torn between important tasks and relationships.

Andrea's withdrawal from the challenge may be related to a fear of damaging relationships. At these moments, her cool reflective system seems to attenuate and her hot system seems to accelerate. In contrast, when leading cross-functional, multi-disciplinary meetings, for example, she has excellent skills in managing all kinds of complex

situations. She manages conflicts, giving voice to multiple views around the table and facilitating a joint conversation among people with opposing views, and tackling many issues calmly and fearlessly. But these same MC and EI abilities are not in evidence when Andrea enables poor performance or aggressive behavior on the part of others. Andrea withdraws from the challenge at these times and this enables others' troubling behavior.

Neil

Neil holds a Ph.D. in pharmacology and is an experienced manager. He works in pharmacokinetics, a field in which scientists study the journey of chemical compounds in drugs after they are introduced into a living organism. Neil is an extremely skilled scientist and an effective team leader. A passionate and highly accomplished competitive sailor, he is a high achiever at work and play.

Neil leads with excellent vision, innovation, and execution. He is skilled at cultivating relationships and at leveraging those connections to get leadership work done. Yet, Neil's leadership is somewhat paradoxical. He is both highly effective at mobilizing others and highly destructive of his own efforts. He was one of the strongest leaders among the case-study subjects, but also the leader with the most blind spots, including: Being Forceful, Insecure Authority, Need to be Political, Distance and Decenter, and Problems On Teams

He is a strong contributor to drug program teams and yet has a reputation for being too aggressive during drug program meetings--often grilling his subordinates with questions he ought to have asked them beforehand. If Neil could take a more self-distanced perspective, he might see the importance of stepping into the background. He

might help his subordinates rehearse for drug program meetings and, when they participate effectively, let them get the credit.

In terms of MC and EI, Neil sees many complexities and has many EI skills. However, Neil also has limitations in his ability to see complexities and exercise self-control.

Listening to Neil tell stories about his leadership reveals opposing thoughts that may underlie his paradoxical behavior. One can detect his healthy ambition for power and position. At the same time, his discomfort with authority and organizational politics is palpable. He shuns the notion that he wishes his subordinates to recognize his authority—he says he wants them to see him as being on their level--one can detect what his boss Jerry called his commanding "hard edge". Jerry describes times when Neil's direct reports fail to comply with his commands. Neil also espouses disdain for any organizational politics. Yet once can easily detect his admiration for his superiors' political skills – his boss' tact and discretion and the way the VP of R&D exudes executive presence while coming across as vulnerable and approachable.

Laura

Laura is an M.D./Ph.D. with many talents who produces a prodigious amount of high-quality work. After earning her M.D. and Ph.D. she worked for a number of years as a pediatric specialist and stem-cell scientist. Eventually, the 90-hour weeks, juggling patients, research, and family got too exhausting. She was happy to be offered a position at SF Therapeutics. She hoped to assume a more sane life. At least that was the plan. She has continued the 90-hour weeks at SF Therapeutics.

Laura makes outsize individual contributions to R&D with great technical sophistication. She has and eye for talent and made 4 excellent hires, with whom she works well. Her blind spots are Stop Enabling, Insecure Authority, and Problems On Teams.

Laura works in Regulatory and Safety and is responsible for shepherding safety and regulatory work on a number of new drugs in SF Therapeutics' pipeline. In addition to her technical expertise, she is an exceptionally clear medical writer, a rare and valuable skill. She often works late into the night revising FDA filings. In some ways, Laura is the typical subject-matter expert who is a strong individual performer, but not a good manager. But, the story is more complex than that. She shines as a leader on several fronts. Laura's abilities seem to include high levels of MC and EI in many domains.

However, her MC and EI seem to be under-developed in terms of her leadership thinking and the ability to exercise self-control. In working with her direct reports, she does not seem to see and reflect upon the complexity of her leadership role. She focuses on making technical contributions to her direct reports' work but fails to steer them into more constructive and appropriate roles. For example, she does not reign in Dan, a subordinate who is taking on a role that is quite a stretch for someone of his level of experience. Her leadership is needed to nudge him to focus less on his personal ambition for the project and more on collaborating with her and other important stakeholders. Her timid behavior with Dan, another direct report, suggests her anxiety about leading. It's plausible that she feels insecure about assuming leadership authority from an organizational rather than a technical perspective. She can let the anxiety run her rather than the other way around, a possible problem with self-control and MC.

Her self-control difficulty also shows up in cross-functional team meetings. In one example at an important meeting with the board, she raised an unimportant and speculative technical point. This temporarily changed the direction of the meeting, with the board wondering whether they had a major problem on their hands. If she had resisted the temptation to speak her thoughts out loud, this near-disaster might have been avoided. In this situation, as with leading her subordinates, she may have an insufficiently complex view of her leadership role. She focused on being a technical contributor rather than mobilizing others to move drug programs forward. At the moments where Laura focuses on technical rather than leadership issues, her hot system may take over from her cool reflective system. She seems to stop behaving thoughtfully as a leader and has difficulty resisting the temptation to jump right in on technical issues.

Jennifer

Earlier in her career, Jennifer was an O.R. nurse. She eventually burned out from the high stress of the OR and decided to try something new. Jennifer responded to an ad in the paper from SF Therapeutics and was hired by Bryan, one of the founders. She is one of the longest-serving employees in the company and has enjoyed her work as a manager. She has the work-life balance she wanted and she's very good at her job. Jennifer now leads a clinical operations group, organizing all aspects of clinical-trial execution, up to and including data collection. According to her boss, Hector, Jennifer's group is a support function and as such is often overlooked. That is a shame because Jennifer has created processes and techniques that the rest of the R&D division would do well to adopt.

Jennifer does an excellent job supporting and leading her team and she manages people successfully for effective results. Her blind spots are Lacking Visibility and Problems On Teams

Jennifer has a quiet style of leadership. She focuses on her team, doing all she can for them, and they love her for it. She gets things done. Jennifer's lack of visibility in the organization certainly fits her preferences, but it limits her LE.

MC and EI seem to play a role in the reduced LE due to *Lacking Visibility.* Evidence suggests that Laura is not just quiet; she does not want to venture outside her comfort zone. If she had higher levels of emotion-regulation ability (EI) and stayed calm she might be able to control a fear of rejection (i.e. of others rejecting her contributions) little by little in order to enable her hot system (which processes the fear) to attenuate and her cool, reflective system to take over. In turn, this might a more complex view of her working to increase the visibility of her team. A change such as this would be extremely difficult.

She recognizes that the lack of visibility makes it more difficult for her and the members of her team to get things done with others in the organization. By using her EI to resist the temptation to stay in her comfort zone, she might surmount this difficulty. Greater MC would enable her to reflect more carefully on the benefits of raising her group's profile within the organization. Still, it would likely still be very difficult for Jennifer to make that change.

Steve

Steve grew up in a large and close family in Northern California. After high school he completed Bachelor's and Master's degrees in Chemistry. Following

graduation he accepted a job at Dow Chemical. After working as a bench scientist for 5 years the company sent him on a 6-month rotation in the Regulatory department.

Steve was hooked. He loved branching out beyond chemistry to help multidisciplinary teams come up with strategies for regulatory filings. Steve found it exciting to think at turns like a statistician, a toxicologist, a physician, or experts in any number of disciplines. The work was dynamic and he developed mastery in cross-functional teamwork.

Steve arrived at SF Therapeutics soon after he met his current boss at a biotech conference. She had a position to fill and Steve had the experience, intelligence, and passion she sought. Steve has been a star at SF Therapeutics and has played a key role in developing and executing a number of successful regulatory strategies.

Steve was the strongest leader among the case-study subjects. He is excellent on teams, relates effectively to self and others, and achieves excellent results. His sole blind spot is Distance and Decenter.

Steve makes a big and positive impact on regulatory filings. He achieves highly effective leadership, from the point of view of EI and MC, by combining strong ability to relate with the ability to see, reflect upon, and strategize about technical, interpersonal, and organizational complexities. He is, in many ways, a model of self-control and productive MC, demonstrating cool and complex thinking about multiple scientific, medical, safety, and regulatory systems. He is able to carve out a space for dialogue in cross-functional teams where, by all accounts, others feel safe, heard, and seen. This may help them remain calm and to be present in meetings with their reflective cool systems rather than their emotional, reactive hot ones.

Steve seems to operate using his cool system to manage his behavior and interactions, even to direct his strong emotions--often positive ones, like excitement. This is apparent in his well-honed skills in listening, remaining calm, and advocating his own viewpoints thoughtfully and persuasively, convincing colleagues who, as scientists, physicians, and statisticians, are likely more persuaded by data and good arguments than by enthusiasm.

It seems that Steve's drive to contribute to the fullest can, at times, overshadow his direct reports. In meetings at which his direct reports are supposed to represent the regulatory function, Steve sometimes cannot resist the temptation to jump in. This seems to represent a rare break in Steve's admirable self-control, a moment when his hot systems becomes engaged and his cool system becomes disengaged. In these moments Steve's MC retains traces of Kegan's Self-Authoring Mind that drives its own agenda but may not reflect on the limits of that agenda. Steve might wish to take a distanced perspective at such times and reflect upon how much his subordinates should be active in the meeting and the degree to which he should be the focus of attention.

MC can play a cooling role here. With a more complex view of his role--as a leader of his people and not primarily as a driver of successful regulatory strategies--it is plausible that he might remain calmer when he feels the impulse to jump in and take over from his subordinate during a meeting. If he perceives his own success as having as much to do with mobilizing his subordinates as with doing the job he normally does, an important distinction, he may feel less of an impulse to parachute in.

Table 4-2. Scored Leadership Effectiveness Measure

Item		*LiChong*†	*Andrea*†	***Neil****	*Laura*	***Neil****	***Steve****
	Sensemaking *(average)*	*3.7*	*3.7*	*3.7*	*3.3*	*3.7*	*5.0*
1.	*Team*	4	3	4	3	5	5
2.	*Cross-Functional*	3	4	3	3	3	5
3.	*Organization*	4	4	4	3	3	5
	Relating *(average)*	*3.6*	*3.7*	*3.4*	*3.4*	*3.6*	*4.8*
	Team	4	3.7	3.3	4	3	4.3
	Cross-Functional	3.3	3.7	3.3	3.3	3	5
	Organization	3.3	3.7	3.7	3	3	5
	Inquiry (average)	3.3	4.0	3.3	3.7	4.0	4.7
4.	*Team*	4	4	3	4	4	4
5.	*Cross-Functional*	3	4	3	4	4	5
6.	*Organization*	3	4	4	3	4	5
	Advocacy (average)	4.0	3.0	4	3.3	3.0	5.0
7.	*Team*	4	3	4	4	3	5
8.	*Cross-Functional*	4	3	4	3	3	5
9.	*Organization*	4	3	4	3	3	5
	Connecting (average*)*	3.3	4.0	3	3.3	3.7	4.7
10.	*Team*	4	4	3	4	5	4
11.	*Cross-Functional*	3	4	3	3	3	5
12.	*Organization*	3	4	3	3	3	5
	Visioning *(average)*	*4.7*	*3.7*	*4.3*	*3.0*	*4.7*	*5.0*
13.	*Team*	5	4	5	3	4	5
14.	*Cross-Functional*	4	3	4	3	5	5
15.	*Organization*	5	4	4	3	5	5
	Inventing *(average)*	*4.7*	*4.0*	*4.7*	*3.7*	*4.3*	4.7
16.	*Team*	5	4	5	5	5	4
17.	*Cross-Functional*	4	4	4	3	4	5
18.	*Organization*	5	4	5	3	4	5
	Change Signature *(average)*	*3.7*	*4.0*	*4.0*	*3.0*	*3.7*	4.7
19.	*Team*	4	4	4	4	5	4
20.	*Cross-Functional*	3	4	3	2	3	5
21.	*Organization*	4	4	5	3	3	5
	Team Performance *(average)*	*4.3*	*4.0*	*4.0*	*3.3*	*3.7*	*5.0*
22.	*Team*	5	4	4	4	5	5
23.	*Cross-Functional*	4	4	4	3	3	5
24.	*Organization*	4	4	4	3	3	5
	LDMA	**11:2**	**11:2**	**11:3**	**None**	**11:2**	**11:3**
	MSCEIT	**73**	**95**	**95**	**103**	**88**	**95**
	(Overall Average) **LE**	**4.09**	**3.83**	**4.02**	**3.3**	**3.93**	**4.85**
	LE Raw Score	24.6	23	24.1	19.8	23.6	29.1

1=strongly disagree; 2=Disagree; 3=Neutral; 4=Agree, and 5= Strongly Agree – with criteria in Ch. 3

* Group 1 – High MC, Moderate EI, † Group 2 – Moderately high MC, Moderate EI

Table 4-3. Scored Leadership Effectiveness Measure – senior leaders--Lisa, Jerry, Sarah, and Suzy shown for comparison.

Item		*LiChong*†	*Andrea*†	***Neil***	*Laura*	*Jennifer*†	***Steve***	*Lisa*	*Jerry*	*Sarah*	*Suzy*
	Sensemaking *(average)*	*3.7*	*3.7*	*3.7*	*3.3*	*3.7*	*5.0*	*5.0*	*5.0*	*5.0*	*5.0*
1.	*Team*	4	3	4	3	5	5	5	5	5	5
2.	*Cross-Functional*	3	4	3	3	3	5	5	5	5	5
3.	*Organization*	4	4	4	3	3	5	5	5	5	5
	Relating *(average)*	*3.6*	*3.7*	*3.4*	*3.4*	*3.6*	*4.8*	*4.9*	*4.9*	*4.3*	*5.0*
	Team	4	3.7	3.3	4	3	4.3	4	4	3	5
	Cross-Functional	3.3	3.7	3.3	3.3	3	5	3.3	4	3	5
	Organization	3.3	3.7	3.7	3	3	5	3.3	4	3	5
	Inquiry (average)	3.3	4.0	3.3	3.7	4.0	4.7	*5.0*	*5.0*	*4.3*	*5.0*
4.	*Team*	4	4	3	4	4	4	5	5	4	5
5.	*Cross-Functional*	3	4	3	4	4	5	5	5	5	5
6.	*Organization*	3	4	4	3	4	5	5	5	4	5
	Advocacy (average)	4.0	3.0	4	3.3	3.0	5.0	*5.0*	*4.7*	*4.7*	*5.0*
7.	*Team*	4	3	4	4	3	5	5	4	4	5
8.	*Cross-Functional*	4	3	4	3	3	5	5	5	5	5
9.	*Organization*	4	3	4	3	3	5	5	5	5	5
	Connecting (average)	3.3	4.0	3	3.3	3.7	4.7	*4.7*	*5.0*	*4.0*	*5.0*
10.	*Team*	4	4	3	4	5	4	4	5	4	5
11.	*Cross-Functional*	3	4	3	3	3	5	5	5	4	5
12.	*Organization*	3	4	3	3	3	5	5	5	4	5
	Visioning *(average)*	*4.7*	*3.7*	*4.3*	*3.0*	*4.7*	*5.0*	*5.0*	*5.0*	*4.7*	*5.0*
13.	*Team*	5	4	5	3	4	5	5	5	4	5
14.	*Cross-Functional*	4	3	4	3	5	5	5	5	5	5
15.	*Organization*	5	4	4	3	5	5	5	5	5	5
	Inventing *(average)*	*4.7*	*4.0*	*4.7*	*3.7*	*4.3*	4.7	*5.0*	*5.0*	*4.7*	*5.0*
16.	*Team*	5	4	5	5	5	4	5	5	4	5
17.	*Cross-Functional*	4	4	4	3	4	5	5	5	5	5
18.	*Organization*	5	4	5	3	4	5	5	5	5	5
	Change Signature *(average)*	*3.7*	*4.0*	*4.0*	*3.0*	*3.7*	4.7	*5.0*	*5.0*	*4.7*	*4.7*
19.	*Team*	4	4	4	4	5	4	5	5	4	5
20.	*Cross-Functional*	3	4	3	2	3	5	5	5	5	4
21.	*Organization*	4	4	5	3	3	5	5	5	5	5
	Team Performance *(average)*	*4.3*	*4.0*	*4.0*	*3.3*	*3.7*	*5.0*	*5.0*	*5.0*	*5.0*	*5.0*
22.	*Team*	5	4	4	4	5	5	5	5	5	5
23.	*Cross-Functional*	4	4	4	3	3	5	5	5	5	5
24.	*Organization*	4	4	4	3	3	5	5	5	5	5
	LDMA	**11:2**	**11:2**	**11:3**	**None**	**11:2**	**11:3**				
	MSCEIT	**73**	**95**	**95**	**103**	**88**	**95**				
	(Overall Average) **LE**	**4.09**	**3.83**	**4.02**	**3.3**	**3.93**	**4.85**	**4.98**	**4.98**	**4.72**	**4.94**
	LE Raw Score	24.6	23	24.1	19.8	23.6	29.1	29.9	29.9	28.3	29.7

5

LiChong: An Effective Scientific Leader Who Can be too Forceful

Blind Spots: Being Forceful, Distance and Decenter, Problems On Teams

From an early age LiChong loved science. His father worked as a marine scientist in Hong Kong where the family lived. LiChong's enthusiasm for science increased in high school leading him to apply and gain admission to the Faculty of Science at Hong Kong University. There he discovered biochemistry and before long his favorite biochemistry professor offered LiChong a position in his lab. That professor became LiChong's mentor and supervised him until he earned a Ph.D. LiChong continued to work in his mentor's lab as a postdoctoral fellow, researching how organisms metabolize various chemical compounds.

Several years later, LiChong presented a paper on his research at a small academic conference in San Diego. Dave Johnson, a senior faculty member in Clinical Pharmacology at UC San Diego, sat in the audience and listened with interest. Johnson ran a drug metabolism lab and he badly needed a scientist with LiChong's skills. He was impressed with LiChong and sat with him at lunch. After 2 hours of conversation, Johnson offered LiChong a position in his lab. Flattered but conflicted, LiChong asked Johnson if he could get back to him. Upon returning to Hong Kong, LiChong consulted his mentor and family members. Everyone told him that he would be missed, but that the opportunity to live in the West and advance his career was too good to pass up. Convinced, LiChong accepted Johnson's offer.

LiChong thrived in Johnson's lab. Within two years of arriving at UC San Diego, Johnson arranged for LiChong to start his own lab. LiChong succeeded in winning NIH grants and in building a research team. The work that came out of his lab created advances in the field of drug metabolism.

Over time, some of LiChong's colleagues left academia for industry and LiChong wondered if a similar move would make sense for him. An opportunity soon presented itself. Dave Johnson, LiChong's mentor from UC San Diego, had moved on to Merck Research and asked LiChong to come join his group there. LiChong accepted. He liked the fact that there were a lot of good scientists in Johnson's group. At Merck, LiChong spent 15 years developing further expertise in drug metabolism across the spectrum of drug research and development.

That expertise looked attractive to Johnson, who had left Merck and was building a new department at SF Therapeutics, a fast-growing biotech company. Once again, Johnson asked LiChong to join him. He explained that SF Therapeutics needed LiChong's expertise in pharmaceuticals as the company aimed to transition from a biotech company into a biopharmaceutical company. LiChong was up for the challenge and made the move to help build a drug metabolism and pharmacokinetics (DMPK) group at SF Therapeutics. He quickly got to work hiring staff.

As LiChong describes it, DMPK is about what the body does with a drug. His group at SF Therapeutics studies how the body absorbs, distributes, metabolizes, excretes, and deals with the toxicity of new chemical compounds. DMPK's work is necessary at every stage of the drug development life cycle: from early discovery of new

chemical compounds to the development of new drugs, to clinical trials for drugs going through the regulatory approval process.

At each of these stages, LiChong or one of his staff serve on cross-functional teams to make sure that the chemical compounds being considered have optimum drug-like properties, as only those compounds will be moved forward through the years-long journey toward becoming an approved drug.

To run DMPK experiments, LiChong had to build a lab with the kind of sophisticated equipment he used at Merck. At early stages of drug discovery, DMPK needed equipment to run a high volume of *in vitro* (not in living organisms) tests on hundreds of compounds to identify those most suitable to move forward or to determine how compounds must be re-synthesized. At later stages, they conduct *in vivo* experiments in living organisms such as mice. Compounds that make it past that stage go on to human clinical trials.

LiChong engaged his team in researching and testing new equipment to perform these functions. The 6 scientists who work for LiChong helped identify the machines that would speed their work while LiChong secured substantial amounts of money from SF Therapeutics' management to purchase the equipment.

His lab now runs experiments to answer questions for drug program teams such as the following: Does the chemical compound hit the intended target in the body? Does it stay in the body so that it can have the intended effect? Does it get eliminated from the body so that it won't have harmful or even toxic side effects, especially when taken with other drugs that a patient may be taking? Does it get converted in the body into any substance that could be harmful or toxic to a patient?

In his 3 years at SF Therapeutics, LiChong has done an admirable job building a DMPK group.

LiChong: An Effective Scientific Leader Who Can be too Forceful

LiChong is very effective at leading his team and in providing expert scientific leadership across the organization. He also leads in his field through his writing, research, speaking, and involvement in professional associations. However, LiChong can be too forceful with his scientific positions, particularly on cross-functional drug program teams. This limitation erodes his effectiveness in the multi-disciplinary settings that are critical to drug R&D leadership.

Team Leadership

LiChong has been very effective in building a new lab from scratch since arriving at SF Therapeutics. At Merck, LiChong developed expertise in small-molecule drugs. These are pharmaceuticals that usually come in pill format and are taken orally rather than biologics or large-molecule drugs, often taken by injection.

When he arrived, the firm did not have an in-house lab for LiChong's drug metabolism work on small molecules. To build the lab, LiChong had to attract, retain, and motivate good scientists. He also had to procure lab space, and equip the lab with expensive and sophisticated equipment. Interviewees observed that he did these things admirably.

LiChong made quick work of attracting good scientists to join his lab. Jerry explained that scientists were interested in working for him and learning from him because of his renown. Two scientists on LiChong's staff agreed, noting that LiChong's

expertise had been a major motivation in coming to work for him. “I thought it was a good opportunity for me,” Elsa, one of the scientists explained, “…his expertise was probably the biggest attraction to me.” Riji, another subordinate, recalls that he met LiChong at a conference, two years before coming to work for him and was impressed with the depth of LiChong’s scientific knowledge. Riji left Pfizer, a large and sophisticated pharmaceutical company, for the chance to work for and learn from LiChong. To emphasize the strength of LiChong’s scientific skill as a draw, Jerry recalled that in the midst of LiChong’s effort to staff his lab, the company imposed a hiring freeze for permanent positions. This meant that LiChong could only commit to some staff on a temporary basis. But people came and took the non-permanent positions, according to Jerry, because they felt they would learn so much from LiChong. “That says a lot,” Jerry observed, “to attract people without giving them permanent jobs.”

In reflecting on building the staff for his lab, LiChong reported that he viewed attracting and retaining good staff as one of the most important aspects of his leadership role at SF Therapeutics. Jerry observed that, despite the impediment of the hiring freeze, LiChong executed the goal of hiring staff effectively and expeditiously. Jerry recalls that LiChong efficiently got the interview process rolling, got the right people to talk to candidates, and found ways to get decisions made. He got good people in the door. And once the lab staff arrived, LiChong worked effectively to retain and motivate them by providing a scientifically stimulating environment with rich opportunities for learning.

Two scientists whom LiChong hired explained that LiChong’s scientific depth helped them learn a great deal. Elsa reports that in LiChong’s group, they get past what she felt was the superficial nature of the last lab she worked in. “Here, I see that expertise

is deep. And I learn and change the way I work, which I like a lot." Riji, another scientist in the lab, comments on the substance of LiChong's vision for the group, which is to conduct scientific studies with the goal of reducing the failure rate of chemical compounds, or molecules, being considered as drugs. LiChong guides the group with an in-depth understanding of studies that are and are not worth doing to achieve this goal. In one case, Riji recalled that a drug program team asked LiChong's group to perform 10 studies on a molecule. LiChong understood that these studies would take a number of years and that the same information could be obtained by performing just one study that would take one year.

Riji explains that part of the reason he learns so much from LiChong is that working for him is like working with a professor with an open mind. "He tries to understand the situation," Riji observed. "He asks for details and then asks, 'Why do you think that way?' " Then, he asks for more details. "He asks a lot of questions," Elsa concurred. Every second week LiChong holds a meeting with all the people in his group to do data reviews, which are like seminars. To describe the format, Elsa reports, "We prepare presentations. Anybody can ask any question … we look for the best way to do the work… [We look] at data critically, critiquing and giving advice all together. We learn this way."

To describe his own style leading his group, LiChong says, "The way I do it [is that] I ask questions…. Rather than giving my opinion, I want to get other people's opinion and work on it…like, if an experiment is needed, [I ask], did you look into that?"

LiChong's boss, Jerry, describes this style as a scientist leading scientists. Jerry points out that LiChong, "follows the literature and knows what's going on in his field.

So, he's very much involved and enthralled with the science." LiChong and his people, according to Jerry, speak the same language in terms of science, "so, they're communicating on a scientific level." Expanding on LiChong's scientific focus, Jerry reports, "He's looking for good science to make sure the molecules we're developing have the right studies done, have the right science done."

Jerry observed that LiChong keeps people motivated by giving them interesting projects, mentoring them, and giving them a lot of freedom. Jerry explains, "He does a lot of mentoring. [His staff] learns a lot from him… he teaches them and guides them and gives them enough freedom to really work on their own projects. He's there when they need him for help."

LiChong admits that he wasn't always so comfortable with his current approach to giving people projects and giving them space to complete them. "In the past …I used to get a little impatient," he confesses. "If something I think should take a day and I don't get an answer within a week, I would think, 'why don't I do it myself?' "

In contrast, his current approach is to delegate as much as possible and to delegate those things that a person has the time, skills, and inclination to do. LiChong says that he is careful to try to delegate to people based on their interests, even if the person does not yet have the skills. "A lot of time the person may not have the skills, but they still want to go in that direction. So that's another thing I have to look into."

Jerry told a story about how LiChong's approach to mentoring and delegating led Riji to expand his skills. When Riji came to SF Therapeutics from Pfizer, he already had a good understanding of drug metabolism. He learned a great deal more from LiChong. In addition, LiChong gave Riji the opportunity to branch out into other areas and Riji

learned a lot beyond his direct scientific area. This mentorship developed to the point where Jerry and LiChong felt comfortable with Riji being a representative to drug project teams that cover more than just the areas specific to LiChong's group. LiChong, said Jerry, "really helped [Riji] to blossom and develop."

LiChong also engaged his staff in procuring lab space within the company and in acquiring expensive and cutting-edge instruments to perform their drug metabolism research. He routinely assigned his people with the task of evaluating needed equipment, often costing hundreds of thousands of dollars. After the individuals made the comparison of pros and cons for each option, LiChong would ask them to make the decision. Elsa recalled a team process of evaluating a piece of equipment that cost $660,000. The staff evaluated machines from two different vendors, discussing them at length and trying the machines. There was a difference of opinion within the group, but LiChong did not force his own opinion, preferring to wait until the group came to consensus.

Both Elsa and Riji said that this approach sometimes delayed decisions and expressed a wish, at times for more intervention and direction from LiChong. "He gives great direction," Riji explained, "but leaves execution up to the group… It's like having two traffic lights and can cause a traffic jam."

Interviewees describe LiChong as pleasant, but also more focused on the science than on people. "He's affable with his people," according to Jerry. "He is a nice person," Elsa concurs. However, one of LiChong's peers reveals a distinction between being pleasant and engaged with people. "He's a good scientific leader, no doubt about it," the peer confided. "In terms of managing projects and giving scientific guidelines, he does

that very well." But, the peer continues, LiChong is not that engaged with his people as a person on an emotional and relationship level. According to this person, people do not tend to feel comfortable approaching LiChong to talk to him as an individual, a colleague, and a friend.

Leadership Across the Organization and the Field

LiChong leads with his scientific expertise across SF Therapeutics. Jerry reports that LiChong is often invited by people from the outside scientific community to chair sessions at conferences, to contribute book chapters, and publish papers. LiChong invites his staff to be involved in these activities, which creates visibility for them. In addition, LiChong invites people from other parts of SF Therapeutics, outside his group, to participate in these activities.

LiChong makes successful efforts to create visibility for his group within the firm. He works to make others in the company aware of the work his group does and the services that it can provide to drug program teams. When LiChong's lab became fully functional LiChong's group put on an open house. They invited the head of R&D to a ribbon-cutting ceremony and provided several handouts explaining the work of the group. LiChong remarks that people within the company had not seen a lab open house like that before and it created good exposure for his group and their work.

LiChong consults with senior leaders. His approach is similar to his way of working with his staff. He asks questions. In one instance, senior leaders consulted LiChong about looking at the metabolism profile of a drug being tested in humans. Human subjects were to be observed at a clinic for 7 days to see how much of a chemical compound in a drug was being absorbed by the body, how much was being eliminated,

and in what form. LiChong succeeded in convincing the senior leaders that only 4, rather than 8 or 12 subjects needed to be studied, substantially reducing the resources involved. He did this by asking a series of questions. With a Socratic approach, he established that the purpose of the study was to understand what form of a chemical compound the body eliminates, not to detect an effect using statistics. He asked what studying 8 or 12 subjects would reveal that studying 4 subjects would not. One decision maker laughed as LiChong's questions had helped him to see that this was not a statistical issue and there would be no difference.

Another time he used questions to lead colleagues to reflect on the good sense of hiring a person with Master's degree, not a Ph.D., to direct a lab. LiChong asked, "If the person has been working in our department for almost 6 years and has demonstrated that her skills are no less than other candidates with a Ph.D., why do we not consider it?" He changed others' minds. The person with the Master's was hired as a lab head.

However, LiChong neglects organizational politics. Elsa, one of the scientists in his lab lamented, "he has difficulty managing up and being involved in the politics of the company." Elsa acknowledges that LiChong has made inroads in raising the visibility of his group within the organization. On the other hand there are forums within the company in which the group might have a presence, but it does not. For instance, the group does not participate in drug discovery project management where its expertise is applicable.

According to Jerry, LiChong can be too forceful about his scientific views on such cross-functional teams. This tendency might inhibit his ability to build bridges to other parts of the organization. LiChong himself wondered how he could be more effective in making a case for his group's involvement in more projects. He expressed

frustration that he is not able to be more persuasive with executives higher up in the R&D hierarchy. Perhaps tellingly, he described the issue of not having greater influence as if it were just a matter of science and not of relationship-building or organizational politics. “I think science dictates the thing,” LiChong observed. “Sometimes, I feel like I’m not that persuasive. Though, I may make the scientific case, but somehow, I lose.”

Too Forceful on Cross-Functional Teams

LiChong’s behavior on cross-functional teams contrasts starkly with the Socratic and consensus-building behavior he exhibits when leading his own team. He can become overly vocal and not listen to others. “He’s very vocal in the [drug] program team meeting,” explained a peer. “He won’t wait, right or wrong, he’ll chip in.” In these situations, the colleague explained that LiChong has a loud voice and speaks his mind. He is forceful and does not seem to be sensitive to what other people are benefitting from or not. A typical example occurred in a cross-functional drug program team meeting. He abandoned his thoughtful questioning style from the lab and grilled one of his staff with questions. A young scientist had just presented to the program team and it seemed as if LiChong wanted to show his scientific knowledge by aggressively challenging the young scientist with questions. A person of LiChong’s caliber, the peer opined, does not need to demonstrate his knowledge and he should have coached his subordinate before the meeting rather than dressing that person down with a scientific critique.

Jerry, LiChong’s boss, concurs that LiChong needs better listening skills on cross-functional teams. “I’ve seen him in situations where there might be a conflict in terms of roles and responsibilities…where he feels his group should be doing it rather than another group,” Jerry explained.

> If it's something that might be threatening in his area, he tends to get his back up a little bit. He's very direct. He'll say what he thinks. If we're in meetings with people and there's an issue on the table or a conflict, he's not afraid to say what he thinks about it. Sometimes he should use a softer edge. Sometimes I see that when there is a conflict, he's not really listening to the other person.

According to Jerry, at these times, LiChong is fixated on his own scientific point of view and isn't considering, let alone respecting, others' points of view. If he wants to advance in the company, he needs to learn to really pay attention to views from across the table by people from different disciplines and different parts of the organization.

LiChong has displayed a similar kind of forcefulness about personnel, when working on cross-functional teams.

> The way the process works is that people will recommend people from their group.
>
> You get a lot of documentation together. Once it's all together, we distribute them and we sit around the table and talk about the people and see if everyone agrees, this person is ready for a promotion or not. I've seen a couple of times where he [LiChong] hasn't been willing to bend on a certain person because they haven't met some requirement. Where everyone else is saying, "Yeah, they haven't met this requirement, but look what else they've done. It should really make up for that.

LiChong wants to make sure that promotions match his own scientific guidelines. LiChong's forcefulness in contexts designed to be collaborative may limit his effectiveness as a leader. On cross-functional teams in particular, where different team members must find ways to lead others without positional authority, forceful behavior is not likely to be influential.

LiChong's LE and Blind Spots Interpreted through MC, EI, and the Hot and Cool Systems

LiChong is a strong team leader, a strong scientific leader, and leads well across the organization and his field. His blind spots are Being Forceful, Distance and Decenter, and Problems On Teams

To examine how MC and EI might contribute to LE and Blind Spots for LiChong, I first review highlights of his results on the LE measure, shown in Table 5-1. The scores represent levels of agreement with LE criteria (see Table 3-5) for each item[26] using the method described in Chapter 3. Next, I interpret the scores in terms of MC, EI, and LE, considering the interplay that the hot system and cool system might have with these variables.

I remind the reader of my revised approach (see p.30) in addressing each case to the question of the separate or joint impact of MC and EI on LE. Due to the fact that participants' MC scores were too similar to permit a meaningful comparison of two groups different on MC, but similar on EI, I have adopted a case-by case approach. I do not advance any strong claims here, nor at the end of the other cases, but rather look for plausible interpretations to be investigated in future research.

Looking at Table 5-1, LiChong's strongest ratings are for *Visioning, Inventing,* and *Team Performance.* His weakest ratings are for *Sensemaking, Relating, and Change Signature.* LiChong's tendency to be too forceful on cross-functional teams shows up in these ratings. First, for the sub-items under *Relating* he is strong on *Advocacy* but middling on *Inquiry* and *Connecting*. Second, his ratings for the cross-functional team

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[26] 1=strongly disagree; 2=Disagree; 3=Neutral; 4=Agree, and 5= Strongly Agree – with criteria in Ch. 3. LiChong is part of Group 1 – High MC, Moderate EI.

context tend to be lower than those for leading his team and advising others across the organization.

LiChong's apparent strengths in *Visioning, Inventing,* and *Team Performance* may be related to his ability to use his MC and EI in these domains. He communicates a complex view of drug metabolism and pharmacokinetics and a sophisticated vision for his group. As Jerry explains, LiChong's sophistication and expertise attracted good scientific talent to his group, despite the fact that they were not assured of a job a year after their arrival due to a hiring freeze. Riji and Elsa also report that LiChong's deep understanding of the rationale for doing different experiments enabled him to design efficient and effective studies. This may have been related to the sophistication of his mindset (suggested by his MC score and, even more so, the interviews) and ability to direct his own enthusiasm (EI) for the work toward solid plans for carrying it out.

As well, LiChong's effective management of his people shows complexity that is characteristic of strong MC skills and solid EI-skills. He maintains what Riji and Elsa report is a calm and comfortable feeling on his team. LiChong's complexity is evident in his ability to understand his subordinate's perspectives and professional development needs. One can tell from his behavior that he sees and respects his subordinates' scientific ideologies, which are each slightly different from each other's and from his own. With subordinates from disparate national cultures, he creates an inclusive environment that accommodates differences. All of this is evident in his success at tailoring work assignments to his team members' strengths and interests.

In addition, Riji and Elsa liked the extent to which LiChong always asked questions in order to encourage them to look at problems from many sides. LiChong

seemed to hold competing views in tension and left it to his staff to make decisions about what views to use in carrying out their work, being careful not to resolve problems to his own point of view. Elsa and Riji say he was careful not to impose decisions on his staff, which he easily could have done. In fact, each subordinate expressed some frustration that he delegated decision-making as much as he did, with little guidance (which LiChong explained he did intentionally to help develop his people).

As well, in order to achieve the high quality, high quantity of work output by his group, LiChong worked carefully with them, but with a gentle touch, being careful not to alienate them by, for example, reacting harshly or critically to mistakes. Elsa and Riji expressed gratitude for his tolerance of mistakes. Such self-control might have been related to MC's ability to reappraise stimuli, such as a subordinate's mistake, as a developmental opportunity for that person. From all accounts LiChong maintained his calm even with many projects on the go, which also looks like good self-control. When working with his team, LiChong seems to control his negative emotions and reappraise challenges as learning opportunities, rather than reacting impulsively with his hot system.

This self-control ability did not carry over to cross-functional teams when his ability to think in a complex way, allow for diverse views, and to remain cool regularly eluded him. Reports of LiChong getting his back up, feeling threatened, and then responding forcefully on cross-functional teams sound like his hot system dominating. According to his boss and a peer, at these times he raises his voice, speaks his mind very directly, and develops a hard edge in arguing his points. At these times, his EI seems powerless to help him control his outbursts and his cool system seems asleep.

With his own group, LiChong certainly seems to be working from his cool cognitive system as he deftly creates and implements plans for leading his team to do the adaptive work of exploring new science and of bringing new R&D capability to SF Therapeutics. He shows this cool, reflective, strategic, and patient approach in engaging his team to test and purchase very expensive lab equipment that they had never used. He resisted the temptation to jump in. Instead, he let them conduct the process, make their own mistakes, and develop their own views as they worked with him to set up a new lab at SF Therapeutics. In these situations LiChong behaves as if he is able to cool his hot system through a complex view of how to develop his team, reportedly reappraising his subordinates' mistakes along the way as learning opportunities. He also behaves as if he can control any impulses he has to be angry, critical, or impatient.

This is not the case for him on cross-functional teams where he *does* get impatient, angry, and contemptuous of others views.

Table 5-1. Scored Leadership Effectiveness Measure, LDMA, and MSCEIT – LiChong

Item		*LiChong*[†]
	Sensemaking *(average)*	*3.7*
1.	*Team*	4
2.	*Cross-Functional*	3
3.	*Organization*	4
	Relating *(average)*	*3.6*
	Team	4
	Cross-Functional	3.3
	Organization	3.3
	Inquiry (average)	3.3
4.	*Team*	4
5.	*Cross-Functional*	3
6.	*Organization*	3
	Advocacy (average)	4.0
7.	*Team*	4
8.	*Cross-Functional*	4
9.	*Organization*	4
	Connecting (average)	3.3
10.	*Team*	4
11.	*Cross-Functional*	3
12.	*Organization*	3
	Visioning *(average)*	*4.7*
13.	*Team*	5
14.	*Cross-Functional*	4
15.	*Organization*	5
	Inventing *(average)*	*4.7*
16.	*Team*	5
17.	*Cross-Functional*	4
18.	*Organization*	5
	Change Signature *(average)*	*3.7*
19.	*Team*	4
20.	*Cross-Functional*	3
21.	*Organization*	4
	Team Performance *(average)*	*4.3*
22.	*Team*	5
23.	*Cross-Functional*	4
24.	*Organization*	4
	LDMA	**11:2**
	MSCEIT	**73**
	(Overall Average) **LE**	**4.09**
	LE Raw Score	24.6

6

Andrea: An Effective Leader Who Can Be Too Enabling

Blind Spot: Stop Enabling

Andrea discovered statistics on a summer program during her teens. By her junior year in high school, she knew she wanted to learn everything she could about statistics and computers. That desire led to her enrollment at Caltech in Pasadena, California where she majored in statistics with a minor in computer science. She was a serious student, but also very social.

Her first job out of college was in biotech at Amgen as a statistical programmer. She planned to attend graduate school but was enjoying working and learning so much she decided not to go. She loved her job and was good at it. She worked as a statistical analyst for a number of years, supporting biostatisticians and eventually moved up to work as a biostatistician herself. Without at Ph.D. her role was somewhat more junior than many of her colleagues, but she showed a knack for project management. Consequently, her superiors promoted her to the ranks of management.

After 8 years at Amgen, SF Therapeutics hired her to manage a group of biostatisticians. That was about 12 years ago. She is now Senior Director of Statistics Project Management.

"As far as I'm concerned, I have the best job in the company," she enthused. "Drugs are based on a lot of data and you have to prove from data-driven decision-making that they are efficacious. And there's a risk, which could be they make you have

adverse events." In Andrea's view, biostatisticians get to determine whether drugs work or not. They do this by getting the data from clinical trials and then designing and running statistical analyses. In the process, biostatisticians work with others from many departments within R&D, including those that do statistical programing, the group that runs clinical trials, and the drug program teams for each drug.

Andrea supervises 4 people and they, in turn, manage about 40 people at sites on the east and west coast of the U.S. as well as a group in Ireland. Most of these people are full time. Contractors are hired when the workload gets heavy or FDA deadlines are tight.

Andrea's role is somewhat more production oriented than the other case-study subjects in this study. Her boss, Sarah, sets the technical direction and Andrea's role is to make sure her strategy gets executed. Andrea will participate in cross-functional drug-program teams, but not in a primary role like LiChong and others who are technical experts.

An Effective Manager Who Can be too Enabling

Andrea's boss and her direct reports describe her as an excellent project manager who ensures her group meets deadlines with high quality work. She is known as a competent doer in the R & D organization and excels at building relationships. She agrees with that assessment. However, dealing with difficult issues in relationships can be a challenge for her. This is so much so that it is something that others say holds her back from being a highly effective leader. In some situations, she can be enabling of poor performance or difficult behavior.

Andrea's strengths in executing within the organizational system, her ability to build strong relationships, and instances in which she has been enabling of poor performance and aggressive behavior are the subjects of this case study.

Strengths in Managing and Leading Work in the Organization

In getting statistical work done on time and in full by her team Andrea also leads. She intervenes effectively with her team, with cross-functional teams, and across the organization.

Paul, her former boss notes that Andrea chairs regular team meetings with a strong sense of mission and values and in a way that makes room for multiple perspectives. For example, she leads meetings about two complicated and highly time-pressured drug filings on which her team is currently working. "She's very good at starting the conversation off then burrowing down to what the issue is," Paul reports. Andrea motivates the team with her can-do spirit in the face of thorny challenges. "Yes, we can get this done, we're going to get this done," is the way Paul describes her approach. And when competing perspectives arise in the conversation, Andrea's characteristic reaction is to say, "Let's talk about that," Paul observes.

Andrea uses her ability to deal with multiple perspectives across her organizational networks. She led statistical work on a filing of a drug for a rare "orphan" disease. Andrea understood that the physicians and clinical operations staff involved in clinical trials for this rare disease did not have experience with the small samples of patients involved. Consequently, they "don't know what they don't know," Paul said. They based their assumptions about statistics on larger samples. Andrea addressed this by

trying to understand their perspective and educating them about the non-routine statistical concerns her team would have.

Another time, on a particular phase of a clinical trial, the database lock (the point at which data is finalized for statistical analysis) was delayed. Andrea's team was concerned that they would have difficulty meeting their deadline. Andrea called up her peer in Data Management to find out what happened and how the delay had been caused. Once she understood her colleague's perspective, she opened up a conversation about how her group and Data Management could work together to avoid such a problem in the future. According to Andrea, she took the time to build and maintain a bridge between Data Management and her team with the ultimate goal that, "a lot of cars can go over the bridge."

Andrea also demonstrates an ability to advocate for her group. In one instance an executive from the Regulatory group asked for a new piece of work that proved to be more than Andrea's group could manage by the submission deadline. Andrea reminded the Regulatory colleague that this extra piece of work had not been agreed to and would mean high additional cost. "It's not a push-button activity," she responded. "It would involve hundreds of hours of work." With this objection, Andrea and her Regulatory colleague worked out the risk to the filing of having the analysis prepared or not. They decided to have the analysis done by an outside contractor, just in case.

Andrea delegates effectively, for the most part, to her 4 direct reports. Tom, a direct report, says that when she hands off a project, "she doesn't always jump all the way out at an early time." He appreciates that level of support and explains that Andrea's approach is, "I want to be here to help out. Just tell me when you don't need more help."

Tom reports that she will do what she can to help out until someone tells her "It's okay, I can do it on my own." Sometimes Andrea spends a lot of time working with her direct reports to prepare them, particularly if the project is important. She tries to engage subordinates in thinking through multiple perspectives and issues, but can also provide quite detailed directives. In talking about delegating leadership of a cross-functional group to a subordinate she explains, "I might need to spend more time with that person -- kind of walking through, what do we need to get out of this? Who do we need to involve? Here's how I would set up the meeting to kick it off. What do you think?" Andrea says she hopes she's not micromanaging, but sometimes fears that's the result.

Both her boss Sarah and her colleague Paul express appreciation for Andrea's command of details, as in her detailed preparation with subordinates when she delegates, but express concern that she may get somewhat lost in the details. Sarah has been working with Andrea to help her focus on the most salient issues and to understand that by doing so; many important details will fall into place underneath. Laura has told Andrea, "I'd like you to focus on the mountains, the peaks, and not the valleys. If you give me the peaks, I kind of know the valley and river by it." Sarah says that sometimes she thinks that Andrea focuses on so much detail that, "we're getting lost in the forest a little."

On the other hand, Andrea's attention to detail has resulted in the high quantity and quality of work output by her statistical team. SF Therapeutics' R&D division has made strenuous demands on Andrea's group and, as Andrea reports, "we're meeting a lot of our deadlines. We're making a lot of progress." Sarah cites a recent example. Andrea worked with, "…her staff and other staff to get a submission moving forward on a really

tight timeline… They had a long list of things to be done. It seemed overwhelming a few months ago and now it seems manageable." Sarah gives Andrea credit for that. Paul concurs and added, "People are really satisfied with what she delivers." Andrea's style is to drive these accomplishments by focusing on relationships.

Strong Relationships

Andrea pays a lot of attention to building friendly and good relationships with people on her team, on cross-functional teams, and across the organization. "My opinion," she explains, "is that the more I know who the other person is, what their group does, the more I understand what is going on with them... I can better understand what I need to do. And, I can better understand what they might need from me and what I need from them." Andrea states that, "I've built some really good relationships with people." She finds this helpful for communication and establishing trust, which makes it easier to get things done. This is particularly so with colleagues in groups she interacts with regularly. Of colleagues in groups with whom she may not interact often, she says, "I think I need to re-visit those relationships." Andrea discloses that she thinks relationships are, "…key to getting things done, especially in this culture and in this company."

People who work with Andrea confirm that she builds good relationships and can relate well to others. Her colleague Paul appreciates that, "she has a remarkable knack of knowing how to pitch a conversation," in a way that feels natural and appropriate. For him, her comfort in dealing with executives, on one hand, and ability to explain to a group why things are being done without being condescending, on the other, reminds him of the advice from a Rudyard Kipling poem, "…walk with Kings – nor lose the common touch."

Gwen, a subordinate, finds Andrea's very positive and optimistic attitude very supportive. "She really keeps things positive…constantly pointing out that people are doing a good job … keeping people focused on the successes," Gwen commented. "That's the thing that helps me the most." Andrea's boss Sarah concurs that this positive approach builds relationships and motivates others. "She's got a lot of energy that inspires people. She shows that in how she speaks and she's very talkative. The support, the energy, the talkativeness motivates [others] and energizes them and gets them moving." Andrea's subordinate Tom agrees that Andrea is very people-oriented and very good at building relationships.

However, Andrea's boss Sarah observes a number of ways in which Andrea's, "popularity," in the company may be at the expense of her effectiveness as a leader. "People come to her all the time because she's so well networked…. It's kind of like she is so popular that everyone wants to go to her. And sometimes it's easier for her to do it rather than delegate it." Sarah concedes that, since Andrea makes things happen, this is good for the company. "But, it's also good to let other people grow," she explains. Even though Andrea delegates, she could delegate more. She might also contribute more as a leader by resisting the temptation to do things because people come to her and, instead, refer them to the parties that ought to be taking on a particular responsibility. Paul agrees that Andrea "has her finger in a number of different pies." Some of these involvements should be re-directed to others. There are also other more significant ways in which Andrea's strengths at building friendly relationships come with an aspect that limits her leadership effectiveness.

Too Enabling of Poor Performance and a Difficult Executive

In contrast to her boss Sarah, Andrea's focus on building positive relationships can make it difficult for her to deal with problem performers and to deal with aggressive colleagues. Sarah reports that Andrea has trouble making hard decisions about people. "Overall, Andrea is very popular," Sarah commented, "but leadership isn't about popularity. If you're too popular or too close to people, it can be hard to make the tough decisions." Andrea, "had a poor performer in Ireland and it took her forever to really deal with that." There were some complications with the poor performer, but on the other hand Sarah explained, "those kinds of things are hard for her…. You know, this popularity thing (laughs) is great when things are going well." But when Andrea has to give hard feedback to people, or deal with under-performance it presents a challenge. Despite her own close relationship with Andrea, Sarah is able to give Andrea difficult feedback like the need to deal with such problems.

Andrea acknowledges that she has had challenges giving negative feedback that is needed by people she manages. "I'd like to be better at giving feedback that's constructive, and informative, and actually develops people," she concedes. Revealing more, Andrea tells of not knowing if she's candid enough. She talks about trying to give feedback to a problem performer at a mid-year review. She felt that her positive comments came across but wondered if the person really understood the negative feedback, some of which was quite negative.

Sarah illuminates further with a story. "We had a situation with one of her most junior programmers…. she didn't deliver… and there were complaints from people in the organization who worked with her." Andrea did not deal with the situation effectively for

some time and finally worked with Human Resources to put the person on a performance plan. Sarah recalled that the poor performer behaved poorly and complained about the performance plan in a way Sarah felt was grounds for dismissal. “In my mind, I remember thinking, “If someone said that to me, I'd say 'Goodbye'," Sarah said. The person stayed on the performance plan for two years, and eventually her performance came up to par. Andrea ultimately gave the person a promotion and a raise. Sarah and the Human Resources person were quite skeptical about Andrea’s approach.

Tom adds that Andrea has, in some cases, focused on maintaining good relationships with problem performers and has given them too much leeway. “She is very much a people person and wants everything to work out.” Tom confides there have been problems with, “individuals that are not performing well. It’s definitely having a ripple effect.” Tom is concerned that low performers are not getting the message from Andrea. Instead of addressing performance problems low performers work around them. The ripple effect is that high performers don’t think it’s fair when problems with a low performer don’t get addressed. Tom is concerned that a high performer in the group might leave when such problems are allowed to fester, although that hasn’t happened yet.

Sarah, Andrea’s boss, reported a different kind of difficulty. Andrea had trouble dealing with Linda, a hard charging, newly hired VP. Linda headed a department that Andrea’s group served. Rolling her eyes, Sarah recalled that Linda thought she was going to fix everything at SF Therapeutics and all at once.

Linda insisted that Andrea’s group change the coding in its data dictionary for adverse events in clinical trials – a huge undertaking. She had a strong opinion and was very direct and very adamant about the need for this change. Sarah explained that, in this

kind of situation, Andrea, " is a doer and she wants to be cooperative. She wants to be popular and she wants to just get things done that people need. She'll just do it." Andrea has not had a lot of experience in saying, "No, that's not right. Of course, we're not going to do that."

Andrea recalls that, "Linda basically made everyone miserable about it." Andrea knew the VP's demand was not feasible. She felt overwhelmed and asked Sarah for help.

In response, Sarah, who had not met Linda, attended a meeting between Linda and Andrea. When Linda began asserting her aggressive demands, Sarah noticed that Andrea seemed uncharacteristically, "frustrated and kind of boiling." Sarah handled the situation by responding to Linda, "Oh yeah, I see what you're saying. We should look into that." Then, Sarah asked Andrea to pull a list of data terms for the VP to re-code. That put the ball in Linda's court. After Andrea delivered the information, they did not hear back from Linda for weeks, and the issue died.

After the meeting Andrea exclaimed to Sarah, "I couldn't believe you were so good with her. How could you do that?" Sarah explained that she understood the futility of getting frustrated with aggressive people like Linda and suspected that if the issue was really important (which Sarah thought very unlikely), Linda would have taken action in response to Andrea's list to move it forward.

Andrea's LE and Blind Spots Interpreted through MC, EI, and the Hot and Cool Systems

Andrea shows real strengths in managing and leading work in the organization and adeptly cultivates and leads through strong relationships. Her blind spot is Stop Enabling.

Andrea's leadership is very effective in many situations. Her best LE ratings are for *Team Performance*, *Inventing*, and *Change Signature* (see Table 6-1). As in the stories just recounted, she uses EI-skills and MC abilities in her leadership. Her complex thinking in leading her own team and cross-functional teams resembles MC of mid-way between Kegan's Self-Authoring Mind and Self-Transforming Mind. She is friendly toward and comfortable with keeping multiple different perspectives alive during meetings rather than advancing one or another way of looking at things. She maintains this complexity across technical, interpersonal, and organizational domains, taking a systems or even multiple-systems view of statistical, social, and organizational life. Andrea's behavior seems rooted in her personal philosophy of leading through strong relationships, efficiency, and organization of work, including being on top of delegating to others and following up with them. She also shows some ability to step back from that ideology, to recognize its limits, and to draw out others' points of view while holding them in tension with her own. However, as much as she displays some Self-Transforming-like complexity in her leadership thinking and behavior, in order to meet the 5th-Order demands of biotech R&D, she actually seems to dip below her self-authoring-like center of gravity to behavior reminiscent of Kegan's Socialized Mind. She appears to be shaped by her "received" sense (i.e. the view she may have learned growing up) of what it means to have a strong relationship with colleagues in ways that hamstring her LE. As her boss notes, leadership is not about popularity. Yet, despite her complexity in many ways, Andrea seems to be too attached to the idea of being liked to be able to distinguish between being soft on people from being tough on problems. This deficit in complexity shows up in her LE scores for *Advocacy* and *Sensemaking*. She lacks the

agency to push back on strong-willed colleagues and poor performers in a way that still maintains good ongoing relations. This Socialized-Mind-like behavior brings her overall average effectiveness score down lower. This reflects the fact that she's very effective in most domains and contexts, but when situations arise with difficult people, she seems to feel torn between maintaining the relationship and addressing the issue, a false dichotomy. With more complex thinking, such as the thinking she uses when running meetings, she would transcend the trade-off between good relationships and addressing problematic behavior and realize – as she does at other times—that it is possible, and necessary for LE to be tough on problems while treating people gently.

EI-skills seem to play a role in Andrea's LE-strengths and limitations. Andrea is effective when she is able to read other's emotions and control her own strong emotions; this supports her ability for systems thinking and sometimes systems-of-systems thinking. When running meetings in which there is a conflict of views, where people disagree, she invites each of them to voice their perspective in order to find a solution. She also keeps her own difficult emotions in check while working to direct the group toward joint problem solving.

However, Andrea's blind spot, Stop Enabling, is that, she doesn't seem be able to stop her avoidance in dealing with performance problems and difficult colleagues.

Table 6-1. Scored Leadership Effectiveness Measure – LiChong and Andrea

Item		*LiChong*[†]	*Andrea*[†]
	Sensemaking *(average)*	*3.7*	*3.7*
1.	*Team*	4	3
2.	*Cross-Functional*	3	4
3.	*Organization*	4	4
	Relating *(average)*	*3.6*	*3.7*
	Team	4	3.7
	Cross-Functional	3.3	3.7
	Organization	3.3	3.7
	Inquiry (average)	3.3	4.0
4.	*Team*	4	4
5.	*Cross-Functional*	3	4
6.	*Organization*	3	4
	Advocacy (average)	4.0	3.0
7.	*Team*	4	3
8.	*Cross-Functional*	4	3
9.	*Organization*	4	3
	Connecting (average*)*	3.3	4.0
10.	*Team*	4	4
11.	*Cross-Functional*	3	4
12.	*Organization*	3	4
	Visioning *(average)*	*4.7*	*3.7*
13.	*Team*	5	4
14.	*Cross-Functional*	4	3
15.	*Organization*	5	4
	Inventing *(average)*	*4.7*	*4.0*
16.	*Team*	5	4
17.	*Cross-Functional*	4	4
18.	*Organization*	5	4
	Change Signature *(average)*	*3.7*	*4.0*
19.	*Team*	4	4
20.	*Cross-Functional*	3	4
21.	*Organization*	4	4
	Team Performance *(average)*	*4.3*	*4.0*
22.	*Team*	5	4
23.	*Cross-Functional*	4	4
24.	*Organization*	4	4
	LDMA	**11:2**	**11:3**
	MSCEIT	**73**	**95**
	(Overall Average) **LE**	**4.09**	**3.83**
	LE Raw Score	24.6	23

7

A Great Scientist and Effective Leader, Reluctant to Exercise Authority and Political Influence: The Case of Neil

Blind Spots: Being Forceful, Insecure Authority, Need to be Political, Distance and Decenter, Problems On Teams

Neil grew up in a small town outside Indianapolis, Indiana. His mother was a homemaker and his father managed the town's drug store. His father grew up on a Kansas farm, came of age during the Great Depression, and became a medic during World War II. Neil's dad had wanted to be a pharmacist but never completed his pharmacy degree. Instead, he ran the drug store but always had to work with a licensed pharmacist. Neil achieved his father's career goals and much more.

A hard-working and serious student, after Neil graduated from high school he entered pharmacy school at Purdue University. With a knack for science, Neil did well and went on to graduate school at University of California, San Francisco. In 1985, he finished his Ph.D. in pharmacology. Rather than pursuing an academic career, he went directly into industry. Neil took his first pharmacology job with Bristol-Myers, a large pharmaceutical company in Connecticut. After five years at Bristol-Myers, Neil moved on to the large drug maker Eli Lily and Company for another five-year stint. Then, in the mid-1990's he transitioned into working with smaller biotechnology companies. He joined SF Therapeutics five years ago.

Neil's branch of pharmacology is called pharmacokinetics. The field is dedicated to the study of what happens to chemical compounds in drugs after they are introduced

into a living organism. At SF Therapeutics, he works in the same group as LiChong, but in a different area. LiChong's team studies how drugs are metabolized and transformed by the organism. Neil's team focuses on studying how drugs should be formulated and dosed. They study the ways a drug gets released, absorbed, and distributed within the bloodstream of an organism. The work of Neil's group begins after the drug discovery phase, once a molecule has been identified as a candidate for clinical study. Within R&D, his team is positioned to help potential drugs transition from research into clinical development.

As he did with LiChong, Jerry hired Neil to help build the drug metabolism and pharmacokinetics (DMPK) group at SF Therapeutics. This group and Neil's area of pharmacology hardly existed at SF Therapeutics before Neil arrived. SF Therapeutics had been a large-molecule biotech company that developed injectable therapeutic proteins and monoclonal antibodies. To diversify its product line, the company wanted to get into small molecule pharmaceuticals. Neil brought small molecule experience from his days at Bristol-Myers and Eli Lily.

Jerry gave Neil an ambitious mandate. Starting with a group of 6 people doing very basic pharmacology work, Neil's mission was to build a sophisticated pharmacokinetics department. His group's function would be to run studies and maintain the company's knowledge of how to safely and effectively formulate and potential new products as they moved into and through clinical study.

Neil faced many challenges in carrying out Jerry's charge. He had to develop a strategy and plan for the kinds of in-depth pharmacokinetic studies his group would carry out. He had to develop existing and new staff to be able to carry out these sophisticated

studies. He started with 6 staff and, over the last 5 years, added 6 more. Neil also had to help people in the organization to understand his group's work and to see the need to incorporate the work into all clinical phases of drug development. This entailed educating senior leaders and drug program teams and persuading them to integrate his group into their work on developing the drug pipeline. Finally, Neil adopted responsibility for ensuring that the right studies got done and that they were interpreted correctly.

A Strong Leader Who Drives Valuable Change, but can be too Forceful

Interviews with Neil's boss, Jerry, two subordinates, another superior, and Neil himself reveal that Neil is an effective leader with a strong vision for his group. He has used his drive for making an impact and to establish a strong team. He has skillfully cultivated important relationships. However, sometimes his drive is too unrestrained in ways that limit him from being an even more effective leader. When others in the organization do not conduct themselves in ways that fit Neil's vision for his department, he can be too forceful in expressing his opinions and disagreements.

Strong Vision, Innovation, and Execution

Jerry reports that he recruited Neil, "…to build up the part of my department--Drug Metabolism and Pharmacokinetics (DMPK)--that really specializes on the pharmacokinetics." Pharmacokinetics is the branch of pharmacology wherein investigators determine a safe and effective dose of a drug based on how the drug is released, absorbed, and distributed into the bloodstream of an organism. At SF Therapeutics, Neil's group deals with drugs after the discovery phase, after a molecule has been declared a candidate for clinical investigation. Jerry explains that Neil provides

a service to the organization that helps drug program teams to transition molecules from research into development. The group is positioned to continue to support drug program teams throughout the process of clinical trials. With this mandate, Neil had to establish a vision, recruit new people to the group, develop new and existing team members, and educate the organization about what his group could offer them. Informants observed that Neil met these challenges admirably.

As Neil describes it, his drive to meet these challenges stems from a desire to make a difference and to be an effective leader. He also confides (and Jerry confirmed) that he'd very much like to be a more senior leader. One thing Neil likes about the drug industry and SF Therapeutics is, "… our focus on helping people." He is motivated by the fact that you never know when one of your products is going to be used to alleviate pain and suffering of a family member. His sister-in-law had a heart-breaking condition for which she was taking a drug on which he had worked. He is an active volunteer leader in pharmacological and scientific organizations and recounts that, in that capacity, he helps shape the careers of people coming up by stressing, "that's where we belong … to make [patients'] lives better." In his own leadership at SF Therapeutics, he takes a similar perspective. He stresses that if someone at SF Therapeutics is upset with someone else it's trivial in the scheme of delivering therapies. He believes people should put aside upsets and, "really think about what you're all here for. It's so much larger." As will be described below, despite his earnest desire to make a difference, others sometimes get upset with Neil, when he is too forceful.

When Neil first came to SF Therapeutics, he highlighted the theme of helping people in a presentation to several hundred people at an offsite meeting. His topic was

selecting safe and effective doses of a new drug at the point of moving molecules from animal trials into human trials. Neil told a true story, famous in some pharmacology circles, about a scientist in the 1950's. "… Of all the crazy things," he wanted to investigate what would happen to an elephant if you gave it LSD. Tragically, the scientist performed the experiment and made mistakes that resulted in overdosing the elephant. The elephant died. Then, Neil went through a series of calculations to show how the scientist came up with the dose and how it should have been done differently and more safely.

In the 5 years Neil has been at SF Therapeutics, he has worked to build a group that is able to advise drug program teams with first rate work in understanding safe dosing. Neil has built a group that offers in-depth work and sophisticated services in pharmacology and pharmacometrics (using mathematical modeling to measure what happens to a drug when it is administered into an organism).

Jerry and Graham, another VP who works with Neil, observe that Neil has cultivated a compelling vision for his group. Graham commented, "Neil is a very energetic and imaginative person, very clever. Every time he expands on a vision … of the future for pharmacology, it's actually very exciting, very motivating… very positive." Jerry says Neil gets his staff to buy into that vision by making sure they clearly understand it and, "…by living the vision and making sure that other folks in the group are living the vision, too."

Informants indicate that complex and in-depth scientific work is core to this vision. Jerry reports that Neil has brought to the organization a new and higher level of pharmacology, "through a number of different techniques and capabilities." Neil's direct

report Liu concurs that he leads the group to use, "all different approaches." Vasil, a subordinate, comments that Neil has changed the superficial studies that were done at SF Therapeutics and has cultivated a more complex and sophisticated scientific approach. This is uncommon in the industry because people are pressed for time and money. But Neil's vision is, "that we have to spend enough time looking at the data to understand what they tell us… and to make decisions based on that understanding." Several informants report that Neil's group does this technically by conducting advanced studies and organizationally by working with drug program teams and carefully evaluating their feedback.

To implement his vision Neil has carefully thought through how to reach out to senior leaders and drug program teams to educate them about what his group can do for them. Neil observes, "…it has been very multi-dimensional -- laying out the organization, figuring out who your [internal] customers are, understanding them…figuring out the best way to interact with them and assist them … and [knowing] when to step back, too." He wants his group to be helpful, but expresses concern, tacitly acknowledging his tendency to be too forceful, about being seen as parachuting into meetings to stir things up:

> It's stepping in and being part of the team. I've done a lot of that and tried to be very mindful that I'm not seen as … one of the guys that went after Bin Laden (laughs) the Seals that go in there and really cause a ruckus…I'd rather be this positive constructive influence where they're, 'Hey we're glad you're here, we've got some ideas… is this consistent with what you're thinking?'

Skilled at Cultivating Relationships

In addition to identifying and building relationships with drug program teams, Neil has worked to develop his people and hire new people into his group. Vasil, Neil's direct report, explains that Neil has further developed the sophistication of the work done by the 6 or so people who were in the department when Neil arrived and that he attracted another 6 new staff. Of the new hires, Jerry recalls that 3 people, who had worked with Neil at his previous company, were willing to move from the East to the West Coast of the U.S. to work with Neil at SF Therapeutics. Jerry's recollection is that all 3 pretty much said, "Yeah, I'll come because I like Neil and I like what he's doing and how he's doing it."

Several informants recount that Neil develops people with a good mentoring style, which includes delegating. He hands out assignments that provide his people with exposure to new opportunities to develop skills and their own visibility within the company.

Jerry indicates that Neil still spends a lot of time with junior people that are in learning mode. Neil describes a way in which he is mentoring a young scientist to develop her very quickly. He assigned her to work with a drug program team for a therapy that offers tremendous benefits to patients but has some concerning toxicology findings. The stakes for this project are high in terms of resources to be spent and meeting patient needs. Neil recounts, "So, I'm stepping in and meeting with her pretty much every day for 20 or 30 minutes," to mentor her through the issues which arise and ensure things get done appropriately.

Neil also develops people, and his relationship with them, through delegating. Vasil, Neil's subordinate, provided numerous examples, corroborated by Jerry, of ways in which Neil delegated and created assignments for people to improve that person's skills. In two cases Neil dealt with staff members about whom there had been complaints and, after careful consideration, re-assigned them to a less taxing and less high profile skill-building role. In another case, Neil helped one of his staff members learn about delving deep into data through mathematical modeling. He assigned her to work under Vasil for two months working with a mathematical model. Two years after that exercise, this team-member has published her third paper on that subject.

With more skilled subordinates, Neil delegates responsibilities and expects a high level of independence and performance. Of delegating to more senior subordinates, Neil says he'll often just say, "Here's what needs to be done." For example, Neil set up a meeting with his two pharmacology directors about reorganizing his department. He gave them the charge, "come to the meeting with some ideas on how we can do this." Jerry notes that Neil's high expectations of his senior people to buy into and execute his vision have produced effective outcomes.

In addition to driving for efficiency and performance, Neil makes an effort to build bonds with colleagues. Graham, one of Neil's superiors comments that Neil is a great listener, a smart guy, a wonderful problem solver, and a great colleague with whom it is very pleasant to work. Jerry also reports a strong relationship with Neil and says he is a great guy. Jerry and Neil share a passion for sailing and sometimes sail on the weekends together. Neil also takes a personal interest in his team members. Liu, a subordinate, says that Neil is approachable and easy to talk to. He encourages people to

approach him. He is sociable with his staff. Liu notes that Neil takes the time to catch up with his team members in the hallways. He frequently holds meetings over breakfast. He also regularly takes the team out for dinner where he encourages people to relax and talk. When it comes to working with his team, Neil explains that he has always tried to have the style with his people of, "you know, I'm with you, side by side on this." He adds:

> Maybe it's just my humble mid-western origins, but it's difficult, honestly, for me to have any feeling--or worse--trying to impress people--with power or influence or anything like that. I'm sort of very sensitive to that. I don't like to have an appearance or a perception that, 'Hey, he's one of those VP types of people, stay away from him.'

Neil took pains to stress that he wants his subordinates and others in the organization to see him as a human being on their level not as remote leader. For instance, he described how he worked with Liu when she was working with a drug program team. Neil spent significant one-on-one time with her establishing plans, reviewing her data analyses, and assessing issues. He recalls saying to her, "… I'm not going to let you fail on that team…I want you to succeed and look really good." Neil expressed that he hoped to ensure that Liu did the proper assessments, "… to make our argument to the regulatory authorities." He also expressed that he hoped Liu would think of him, "Look, he's not afraid to roll up his sleeves and talk about these things and he's a real human being. He's not some senior level guy who's just interested in his career and is going to step on anyone to get ahead."

On the other hand, Neil told stories which expressed the idea that, despite his feeling of discomfort at the idea of being perceived as a powerful senior leader, he would like to command greater authority and respect. In each story Neil seemed somewhat

discontented that others had not agreed with him. In one story, he complained to a powerful senior leader for having people work over a holiday weekend when it had become clear the work was no longer necessary. Neil got pushback from the leader who said, “This is what they have to live with.” Neil ended up walking out of the meeting. In another story, Neil talked about working on a generic biologic drug, called a biosimilar. Neil had actually worked on the original patented drug at another company. A senior leader became concerned that Neil was divulging trade secrets about the original drug. Neil stressed he was not. Through conversation, they avoided a standoff. In each story, Neil expressed the wish not to be seen as political or corporate, but also to be listened to and respected.

While Neil disavowed the desire to be seen as political, corporate, or powerful, he also expressed admiration for his boss Jerry and the head of R&D for doing just that. Neil expressed admiration for Jerry’s discretion. Jerry was at the meeting where Neil complained about over-the-holiday-weekend work, the meeting Neil walked out of in frustration. Neil said of Jerry, “He’s very discreet about things and doesn’t react.” Neil conceded that this leaves Jerry options for bringing conflict to resolution. Vasil, Neil’s subordinate said that Neil could be more political, but he thinks it’s one of Neil’s good qualities that he’s not. Another informant reported that wanting to focus on substance and eschewing organizational politics is a common view among scientists. Neil says that he admires Jerry’s discretion, but thinks it would be too corporate of him to follow suit. Neil also had high praise for Chris, the head of R&D. Neil admires Chris’ ability to command respect and speak directly, without being perceived as threatening. ”There’s no question

that he's an executive in R&D and …very few people…would feel threated by him. He's balanced that." Neil adds, "And that's where I want to go."

Presumably, Neil wants to go in Chris' direction because he would like to be a more senior leader. Jerry explained that Neil has gotten feedback that, on one hand he has great leadership potential to rise in the organization, but on the other hand, he needs to soften his edge with people. Neil has been working with a coach to develop his leadership skills and work on his tendency to be too forceful.

Too Forceful in Expressing Himself

Despite his attempts to show care and concern to others and soften his behavior, Neil can still be too forceful in his leadership behaviors. Informants have described Neil's softer edge being interrupted, at times, by overly forceful behavior with members of his own team, on cross-functional teams, and in interactions with others across organizational networks.

"What I find interesting about Neil," Jerry reflects, "on the two ends [of being soft on people and tough on problems] is that he has to be careful that he doesn't go too far." Neil has a definite talent for cultivating relationships, Jerry observes, and he can also get frustrated in meetings and other situations. Jerry continues, "In some of his leadership style, I've seen that he can be too military-like. You know, lead, follow, or get out of the way."

Jerry comments that, while Neil uses an attentive and supportive mentoring style with some of his more junior staff, he holds more competent senior staff to higher expectations. This can be motivating, but can also go too far. Jerry reports that Neil felt one of the people who transferred from the East Coast to work with him was not being

independent enough. Neil went to the person and told him, “Hey, you’ve got to step up to the plate…you’re walking a real fine line here… your credibility will be affected…this is a company that prides itself on people doing the job that was handed to them.” Neil provided that person with support, but he himself concedes that he may have been to hard on the person. “Maybe it has been a little too harsh,” he admits, “in not showing mercy for people who can’t pull their weight.”

Liu, a subordinate, echoes Jerry’s view about Neil’s tendency to vacillate between being soft on people and too hard on them. She comments that Neil takes pains to build relationships and runs meetings in a way that facilitates the free and democratic flow of scientific ideas. But, on other occasions, she thinks he is not very diplomatic. “If he wants to do something,” she observes, “he wants it to get done [and] he doesn’t think too much about who he will offend.” Liu thinks Neil’s approach gets a lot of things done in terms of building the department and establishing it in the organization. But, she also feels Neil can be impulsive in speaking or acting in order to get things done in a way which undermines his leadership.

Neil’s forcefulness sometimes emerges while he is trying to be supportive of his staff. Vasil said that Neil sometimes offends people while trying to show concern. In one example, Neil had a pregnant woman working for him and her job called for some travel. Vasil recalls Neil saying to her, “you don’t want to travel.” The person did not like this and complained. Neil was concerned about her health, Vasil remembers, but it came out in such a way that because she was pregnant she was having an opportunity for development taken away.

Graham, one of Neil's superiors in charge of a drug development area says that Neil is often too forceful in challenging others' pharmacology assumptions in cross-functional drug program team meetings. Graham sees this as a problem of Neil failing to get alignment with his subordinates before the cross-functional meetings. "The bottom line," Graham reports, "is that, as we're sitting there reviewing… [Neil] is making [pharmacological] comments to the team that they've never heard before. So that can be quite disruptive. It disempowers his line representative in front of everyone." Graham adds, "It makes his organization look bad…because everyone else [from other functions] is aligned and there are no surprises from anybody else." According to Graham, this has happened numerous times and has become a source of humor in the R&D division when Neil does this. Still, Graham admires Neil greatly and the pharmacology services Neil's group provides to drug program teams.

Jerry notes that Neil can sometimes get frustrated with what is going on in team meetings and will go into a hard-edged mode. Jerry has worked with Neil to try to soften the hard edge a little bit. Jerry claims he tries to help Neil achieve a behavioral balance, "…so that, we still get the job done, but people don't feel like they're in the military." In situations where Neil becomes frustrated, Jerry says that his response varies. "You can see when he starts to escalate," Jerry notes. "You can see when the steam starts to rise. Sometimes he gets defensive. You can see a look on his face… where he's about to go off." Other times, Jerry has seen Neil be calm, cool, and collected. Jerry has worked to help Neil to be less explosive when he gets frustrated. "I said to him," Jerry recalls, "Neil, you're an ocean sailor. You've been in really hairy situations and you remain calm, cool and collected. I've been sailing with you. I know how you are. Apply that to your work."

Jerry explains that another typical circumstance in which Neil can become too forceful occurs when drug program teams do not include someone from Neil's group. "There are people [who] go out on their merry way in designing clinical studies without the benefit of having consulted Neil's group," Jerry recounts. "This is frustrating for Neil," Jerry explains, and, "frustrating for a lot of us, too." But, whereas Jerry shows reserve when frustrated, Neil does not always do so. In one instance, a drug program team started developing an auto-injector device to deliver its drug. The team started designing it without consulting Neil. According to Jerry, Neil said, "Whoa, time out. You're going to have to do some pharmacokinetic evaluation and show that you're getting exposure that's comparable by both [the former and auto-injector] methods." Certain people on the team said, "I don't think we have to do that." And Neil responded, "Well, yeah, you do." Neil expressed his frustration a little too much and tried to force his view. With Jerry's intervention, Neil came to understand the program team's point of view on dosing studies and accepted the team's approach. The team decided to speak to the FDA to get permission for leaving pharmacokinetic studies (working with Neil's team) to a later stage of clinical trials.

Neil's LE and Blind Spots Interpreted through MC, EI, and the Hot and Cool Systems

Neil leads with a strong vision, innovation, and excellent execution of his plans. He is also skilled at cultivating relationships and using those connections to get leadership work done. His blind spots are Being Forceful, Insecure Authority, Need to be Political, Distance and Decenter, and Problems On Teams He was one of the strongest leaders in the study and also the one with the most blind spots.

Neil sees and has impressive understanding of the scientific and organizational complexities in SF Therapeutics drug development process. He seems to draw on that understanding to craft an effective vision for his department, develop a strategy for realizing it, and for carrying out his plans. The result is a high volume of quality work by his team.

Visioning, *Inventing*, *Change Signature*, and *Team Performance* (see Table 7-1) are the LE items on which Neil showed the greatest strengths. All informants commented on the fact that Neil communicates an exciting and inspiring vision. Superiors Jerry and Graham and subordinates Vasil and Liu all said that Neil's vision includes in-depth pharmacology and pharmacometric studies designed to provide strong support for all of the different and varied drug programs in the SF Therapeutic pipeline. Informants also described Neil's varied ways of working with his team members, cross-functional teams, and colleagues across the organization to find new ways to execute his vision. As well, through careful and close mentoring and delegating, Neil calibrates his management to team members based on each person's level of experience and competence.

Neil finds ways to provide pharmacokinetic support for many drug-program teams and works to find ways to help ensure teams not currently using his department find ways to do so. For example, he educates senior leaders, like Graham about what his department can do for drug programs to support safe and effective clinical trials. Neil also uses his efficiency, drive, and skill in cultivating relationships to drive change in the way pharmacokinetics is viewed and used at SF Therapeutics. He works bit by bit to change the organization's culture around interacting with his department. Consequently,

as Graham and others report, Neil's group has done a high quality job at meeting the increasing demands of SF Therapeutics bulging pipeline.

The complexities that Neil sees and works with in developing and implementing his scientific vision and in infusing it throughout his team and the organization is apparent in the interview data used in this case. His mindset for making leadership decisions seems to resemble the MC of somewhere between Kegan's Self-Authoring Mind and Self-Transforming Mind. On the technical and organizational domains, Neil leads in a way that suggest an individuated, systems-thinking mindset resembling Kegan's Self-Authoring Mind. Respondents also described ways in which he often showed deft ability to recognize the limitations of his own professional and personal epistemology (of course they did not describe it as his "epistemology") to reflect upon and hold it in tension with views of his colleagues. However, this approach seemed like a precarious mindset for him, one that seemed to strain his MC as evidenced by the fact that he often lost his cool. It is as if he had excellent MC, but it could only bear a certain load before his cool system blew a fuse. One might say that he used his cool system to take a very complex approach and when his approach was opposed, even though it was one that allowed for many other perspectives, his hot system seemed to accelerate and his cool system seemed to attenuate. At these moments, his self-control abilities, exercised quite effectively in building many strong relationships, seemed quite powerless. Neil's strong relationships with others seemed to help others tolerate his outbursts. As Graham said, they almost became expected and were a source of humor for some.

It turns out that Neil's leadership was quite paradoxical. He was one of the most effective leaders among the case-study subjects and yet also encountered the most trouble; he had the most blind spots.

For instance, despite Neil's skill in cultivating relationships, that didn't stop him from getting into trouble with others. While people liked him and felt strong bonds with him, Neil's seemed to miss quite a bit of intrapersonal and interpersonal complexity. I would say that Neil's apparent inability to catch inter- and intrapersonal complexities show up in his ambivalence about authority and about the need to be political, as in not being careful enough about upsetting others whose cooperation he might need down the road.

In terms of authority, Neil's command-and-control impulses, which lack nuance, to say the least, sometimes lurch forward. When he takes an authoritarian tack, Neil displays a lack of ability to reflect upon the limits of his own systems thinking. As well, Neil's often repeated claim that he doesn't want to be seen by subordinates as an intimidating senior leader suggest internal conflict about having authority rather than a realistic fear about how others respond. He does not seem to notice, for example, that when he praises his boss Jerry's tact or expresses admiration for the fact that the head of R&D has a commanding presence yet a gentle interpersonal style, he is appreciating a more complex approach to authority. In this more sophisticated approach the leaders break authority into many parts. They cultivate power, which they can use to lead, while conducting themselves in a way that others experience as soft and approachable, rather than as harsh. Neil is too often perceived as harsh. As his boss says, he too often has a hard edge and, although coaching has helped, it needs further softening.

A similar lack of a complex approach shows up in Neil's espoused rejection of organizational politics. It would be more complex for Neil to continue to dislike organizational politics on one hand, but be aware of how important other peoples' perceptions can be for his LE on the other.

As Jerry explains in reflecting on Neil's forcefulness, "to engage other[s], rather than going in and saying, 'Listen, I think this is the way it should be done, and that's it'," Neil would be more effective if he found ways to bring people along. Jerry explains that the work of Neil's department represents new science and new ways of thinking about things. It is therefore important for Neil, in Jerry's view, to engage in the political tact, to a certain extent, to get buy-in from people he wants to influence. Jerry feels that it is harder for Neil to get buy in from people after he offends them.

Indeed, Neil does intentionally work continually to educate others about the work of his department and at these times he is reflective about others' perspectives. But, at other times he eschews the need to be political. He becomes reactive in a way that Jerry and others describe as too harsh. As mentioned, when Neil loses his cool, he loses access to his complexity, or reaches the limits of his complexity, and his hot system hijacks his cool system.

Table 7-1. Scored Leadership Effectiveness Measure – LiChong, Andrea, and Neil

Item		*LiChong*[†]	*Andrea*[†]	***Neil***[*]
	Sensemaking *(average)*	*3.7*	*3.7*	*3.7*
1.	*Team*	4	3	4
2.	*Cross-Functional*	3	4	3
3.	*Organization*	4	4	4
	Relating *(average)*	*3.6*	*3.7*	*3.4*
	Team	4	3.7	3.3
	Cross-Functional	3.3	3.7	3.3
	Organization	3.3	3.7	3.7
	Inquiry (average)	3.3	4.0	3.3
4.	*Team*	4	4	3
5.	*Cross-Functional*	3	4	3
6.	*Organization*	3	4	4
	Advocacy (average)	4.0	3.0	4
7.	*Team*	4	3	4
8.	*Cross-Functional*	4	3	4
9.	*Organization*	4	3	4
	Connecting (average*)*	3.3	4.0	3
10.	*Team*	4	4	3
11.	*Cross-Functional*	3	4	3
12.	*Organization*	3	4	3
	Visioning *(average)*	*4.7*	*3.7*	*4.3*
13.	*Team*	5	4	5
14.	*Cross-Functional*	4	3	4
15.	*Organization*	5	4	4
	Inventing *(average)*	*4.7*	*4.0*	*4.7*
16.	*Team*	5	4	5
17.	*Cross-Functional*	4	4	4
18.	*Organization*	5	4	5
	Change Signature *(average)*	*3.7*	*4.0*	*4.0*
19.	*Team*	4	4	4
20.	*Cross-Functional*	3	4	3
21.	*Organization*	4	4	5
	Team Performance *(average)*	*4.3*	*4.0*	*4.0*
22.	*Team*	5	4	4
23.	*Cross-Functional*	4	4	4
24.	*Organization*	4	4	4
	LDMA	**11:2**	**11:3**	**11:3**
	MSCEIT	**73**	**95**	**95**
	(Overall Average) **LE**	**4.09**	**3.83**	**4.02**
	LE Raw Score	24.6	23	24.1

8

Laura: A Strong Individual Contributor Who Needs to Lead More

Blind Spots: Stop Enabling, Insecure Authority, Problems On Teams

Laura grew up in Chicago and, from an early age, was the kind of kid who excelled at everything she did. She was a top student. She flourished in both athletics and the arts. Track and field became her chosen area of athletic achievement. In high school, she trained heavily and met with much success – particularly in middle- and long-distance races. She continued to run track during her undergraduate years at Harvard where she also worked on the Harvard Crimson newspaper. Laura loved to write. She also loved the idea of being a doctor and a medical researcher. Laura's passion for medicine led her to earn an M.D. and a Ph.D. from the University of Pennsylvania.

In Philadelphia, she did her residency in pediatrics at The Children's Hospital. While caring for children who had diabetes, she became inspired to do scientific studies on the disease. Laura went on to graduate school and became a stem-cell scientist investigating possible treatments for diabetes. From there, she moved to Boston and practiced academic medicine – seeing patients for part of the week and doing lab research for the larger portion of the week. Laura found this life busy, particularly after she and her husband started a family. Juggling patients, research, children and her husband's career as well eventually felt too busy for Laura, even with her enormous capacity for hard work. When a recruiter came calling 9 years ago to try to interest Laura in joining the biotech industry by applying for a job at SF Therapeutics, she was ripe for a change.

Laura breezed through the interviews at SF Therapeutics and she accepted the position the company offered. Soon after, Laura and her family packed up and moved from Boston to San Francisco. Laura began work in clinical development, working with drug program teams to shepherd drugs through the process of clinical trials and assisting with the preparation of regulatory filings. After 4 years, Laura moved into the Regulatory and Safety area with a focus on drug safety during clinical trials. For the last 5 years, Laura has been moving up through the ranks in the Regulatory and Safety department. She has helped shape clinical trials for molecules in many different therapeutic areas and in many different stages of development. Laura has also worked collaboratively with many different companies, such as Genzyme and Merck, in their partnerships with SF Therapeutics.

As a physician and scientist with breadth, depth, and skill in understanding the safety of drugs, Laura has been an important contributor to the design of clinical trials. As an exceptionally clear medical writer she has been called upon to write and edit substantial portions of regulatory filings. SF Therapeutics has others whose focus is medical writing and Laura has often ended up working on writing filings with them, even though such writing is beyond the responsibilities of her role as a Senior Director of Regulatory and Safety. Lisa, Laura's former boss reports that Laura, "…does a prodigious amount of work, [has a] tremendous work ethic, gets stuff done, and delivers things in a very high-quality fashion."

Laura has used her skills and enormous capacity for work to make significant contributions to filings in many different therapeutic areas. For a number of molecules she personally approved investigative brochures; played important roles in the design of

clinical trials; reviewed progress of clinical trials; and developed the substance of product safety information. With so much responsibility and work on her plate, Laura needed help, which arrived in the form of new hires.

Over the last couple of years, Laura has hired four very good people with M.D.'s or Ph.D.'s to share and build on the work she had been doing. It has been a testament to Laura's subject matter expertise and her ability to work well with people to have attracted and retained these individuals. Still, even with the extra staff Laura is working as hard as ever. Part of the reason for this is that SF Therapeutics product pipeline continues to expand. As well, Laura works closely in mentoring her new team.

Informants suggest that Laura's exceptionally hard work--producing her own technical contributions and reviewing those of her staff--comes at the expense of her focus on being a manager and leader. Laura is a gifted individual contributor and, despite working well with her new hires, has had a hard time letting that go in order to re-focus her substantial energies on leading and managing. Her LE scores appear in Table 8-1. Her relatively low scores compared to LiChong, Andrea, and Neil on each dimension are her leadership scores, not scores for her individual performance. An assessment for individual performance would show extremely high numbers.

A Strong Individual Contributor Who Needs to Lead More and Be Less Enabling

Interviews with Laura, two superiors, and two subordinates reveal that she is a subject matter expert who handles a huge workload with great technical sophistication. The quality of her technical work is outstanding. She has also proven effective at attracting talented people to work under her and in mentoring those hires in producing good technical work.

Laura seems to have potential to be an effective leader but, since she is overworked delivering (or helping her direct reports to deliver) technical input on the safety aspect of drug filings, she does not have time or energy to focus on leadership. She also may not have the inclination to focus on leadership. According to informants, there is no question that various drug programs need the technical input that Laura and her staff provide. Her department is understaffed and demand for its work is high. On the other hand, her colleagues all say that she might make progress in addressing this situation by re-focusing her energies toward leading – and not so much on being an individual contributor and mentor. Of course mentoring *is* leading, but respondents said she should lead more. The following sections use interviewee accounts to highlight Andrea's strengths as an individual contributor and mentor, her failure to lead on cross-functional teams and in her organizational network, and her tendency to enable strong-willed colleagues.

Contributes with Great Technical Sophistication

According to Laura and her colleagues, Laura works enormously hard with great technical sophistication so that she and her direct reports contribute to the design and review of clinical trials and produce excellent presentations and reports for regulators on drug safety.

Laura's colleagues have high praise for her technical ability. Lisa, her former boss, enthuses that, "She's tremendously smart and analytical. She has very good judgment on decisions we have to make with respect to drug development." Ashok, a subordinate, marvels at her ability to comprehend a problem and see its details in depth and from many different angles. He reports, for example, that when she reviews a clinical

trial protocol she typically has sophisticated and detailed comments for people from many different functions and disciplines. “For a person in… pharmacokinetics [not Laura’s discipline],” Ashok recalls, “She would say… we know the peak may be seen at this time … you should have had a blood test.” Laura comes up with that recommendation based on digging deeply into a table, where others might overlook the details. Often, the experts will agree with her comments. “That’s just one thing,” Ashok observes, “but she’s able to do that with every line,” as in having similarly spot-on suggestions for toxicology and clinical operations. Dan, another direct report, adds that in addition to insightful attention to details, she also contributes, “the 30,000 foot view.” She’ll look at drugs in the same class or situation and by comparison raises insightful questions and issues. “Her intuition, her clinical experience, and her ability to absorb stuff and come to conclusions are unique,” Ashok reflects. “And that’s why I think she’s one of the best researchers,” he adds.

Laura’s colleagues also praise her writing. Lisa raves, “She is a superb writer and can express her ideas very clearly in writing – they’re very logical, they’re compelling, they’re authoritative … That’s something you don’t see that often in technical people.” Lisa adds, “A lot of them [technical people] are good thinkers and analyzers, but when it comes to writing, they have trouble expressing their thoughts on paper. … So, she’s kind of unique in that way. She’s one of the best writers amongst all of the MD’s in the company.” Linda, Laura’s current boss, concurs that Laura’s writing is excellent.

However, Laura and other interviewees report that she combines her penchant for uncommonly good analysis and writing in a way that often contributes to her being overworked. She will often be up late at night reviewing documents or preparing them for

deadlines. “I know, at times, she’s really stressed, she can hardly stand,” says Ashok, in reference to her workload. “I’ve seen her wordsmith and edit things up until the 11th hour, staying up all night,” Dan adds. Ashok, Dan, and Laura’s superiors all agree that the comments and writing that Laura produces are excellent, but they also wonder if these valuable individual contributions are necessary.

Lisa explains that on the one hand Laura gives more specific technical feedback than other managers and, on the other hand, other reviewers might be more empowering to people receiving the feedback. If someone gives Laura a document on a medical research or regulatory issue, she’ll give excellent critical feedback. Lisa observes, “She’ll say, ‘Look, I think this message is not exactly right, this is actually not the conclusion we want to go with. I think you should bring in this data set.’ ” That helps improve documents, but at the cost of energy Laura might use to lead and empower others.

Laura, referring to herself, acknowledges that, “sometimes, we are too busy working on all the day-to-day work that we don’t have enough time to get all the strategic overview done.” She says she would like to focus more on setting vision, strategy, and processes, but doesn’t get to it. She has ideas about how to change the way her department does its work, much the way Neil and LiChong bring cutting-edge approaches to bear on leading their departments’ work, but she doesn’t have time to develop and implement those visions. She admits, “I’m supposed to be a senior person. I’m trying to do senior things … take on other responsibilities … [but] I’m still working on the same level on other projects and other drugs as the people who are working for me.” According to informants, Laura’s department is too busy due to a lack of staff, but

Laura's approach also contributes to her focus on day-to-day technical issues rather than more senior leadership activities.

Linda, Laura's new boss, thinks Laura should be more active in delegating, managing, leading, and requesting more resources to hire more staff. Linda's take is that Laura's approach comes from Laura's background in academic medicine where there's a culture that believes in martyrdom. Linda holds that there's a technical mindset, first ingrained in medical school, to solve problems on your own. As a medical resident, Linda observes, it's your job to make sure you always have an answer for your attending physician and that everything runs perfectly all the time. Rather than admitting a problem, Linda continues, a resident would say to the attending, "the labs were out of whack this morning… [I] fixed it and now they're good." Linda contends that it would be the ultimate sin in that environment to say, "We just found this problem, and I'm not entirely sure how to fix it. Can you help?" But, she holds, that is exactly the kind of approach that is needed in industry. Linda feels that Laura is locked into that medical way of thinking. "Instead of coming to me and saying, 'I have too much work on my plate,' " Linda complains, "…she stays up until 3, 4 o'clock in the morning until she finally gets through it all."

Good with her People, but Mentors too Closely

Although Laura needs even more staff, she has made progress in this area by attracting, hiring, and retaining 4 people – M.D.'s and Ph.D.'s – over the last couple of years. Lisa notes that each of these people, including Ashok and Dan, is a very good hire. "I don't think it's an accident," Lisa offers, "because I know how difficult it is to hire good people. And to have four people in a row that are extremely good people…she has

an eye for talent [and] they view her as someone that will be a good boss, a good mentor." Lisa adds that this shows Laura's potential for leading people, even if that potential does not always get realized in getting the work done.

Ashok comments that he had heard good things about Laura from a friend who worked with Laura in collaboration on a molecule between the friend's company and SF Therapeutics. When Ashok met Laura, he was immediately impressed with her expertise in drug safety and thought it was apparent that she was a nice person. When interviewing, Dan appreciated Laura's humility and thoughtfulness. She also presented Dan with an opportunity to work on filing a late-stage drug, a rare and worthwhile opportunity. He picked up the sense that Laura was interested in being more than a gifted individual contributor and hoped his career might grow along with hers.

Both Ashok and Dan describe Laura as a high quality, likable person who provides excellent technical feedback. Dan says that Laura is sweet and that it is quirky and endearing how she likes to talk about her daughter's track and field at length. He says that her relationship style can go from, "here's what I think and here's the data," to, "let me tell you about my daughter's running time." Dan remarks that, "I don't know anyone in the company that doesn't like her." He continues, "…she can be a bit verbose…and could be more decisive … but… [She] will see things that will help you." Ashok adds, "She is such a gem of a person on the personal level…has never been bitter or come out as unprofessional in any way. You'll always see a smile on her face. She'll always start with something positive."

Dan says that Laura's mentorship has been helpful. Her approach, "gives you some guardrails about how to approach things." She provides examples from similar

work she's done in the past. In Dan's view, she takes a very academic approach. She enjoys asking questions, gathering additional data, and asking additional questions. She works through problems very thoroughly with her staff. Dan finds that she is a quiet leader who leads by example – working extremely hard and striving for technical perfection. Ashok also says Laura leads by example. He feels motivated by her work ethic and strives to be as technically respected as she is – although, at times he feels her technical standards are too high to match.

Ashok also concedes that Laura's mentorship and input can go too far. Lisa and Linda agree that Laura can be more strategic in her delegating and she tends to be too involved with the technical details of her subordinates' work. Laura empowers her staff by giving them responsibility for major programs and letting them do the work. But, while her input always adds technical value, it can be, "…disempowering that she reviews in too much detail," Lisa observes. Laura worked very closely with Ashok on his projects when he was first hired but, "it probably took her about a year too long," says Ashok, to allow him to transition to the point of doing things more independently of her. She did, however, eventually delegate to him. "Even now," Ashok marvels with a mixture of admiration and frustration, "she's more dialed into the project than I am." The pattern of over-involvement continues with document production. Ashok could finalize more documents than he does, "which I don't do because I know it's going to get changed… [by Laura] anyway," he says. He notes that at a certain point her reviewing unnecessarily increases her workload.

Dan and Linda each commented that Laura's detailed work on subtle technical issues in documents comes at the expense of making small decisions to move work

forward. Dan describes Laura waffling on the organization of the outline for a regulatory document. “We’ll agree to a certain organization,” Dan says,” but then she might change her mind after she thinks about it a little more… And, in the room, you can just feel the ‘oh hell, no’ going on.” Dan feels this hemming and hawing over small decisions could be improved upon.

More Focus on Leadership Needed

Laura’s colleagues seem to agree that, beyond her enormous individual contributions and detailed review of her staff’s work she is capable of leading but often does not do so. Interviewees report incidents where Laura is unprepared for cross-functional team meetings. Perhaps this is due to being overworked and up late finishing documents. Others report incidents where Laura does not focus on interactions with other leaders in the organization. As one example of Laura’s leadership ability, Linda recalls one regular clinical trial review meeting that Laura ran very well, even if she relied too heavily on written communications. “She would be very well prepared,” Linda recalls, “…actually say very little…take notes on what people were saying and summarize…decisions…At the end of the meeting there was a concise summary of the protocol, and what was approved and…beautiful minutes.”

Other meetings, however, are all over the map, according to Linda. For example, Linda remembers a meeting Laura chaired where it was not clear who was going to present and in what order. One person had come to 3 or 4 different meetings ready to present and, again at this meeting, did not have a chance to do so. “She (Laura) lets other people take over the conversation and loses control of the meeting,” Linda says. “Then

Laura tries to get control of the meeting back…and starts rambling…. then people become impatient and start talking."

Laura herself agrees with feedback she received that she can be very strong operationally but not attend to her role as a leader. She rates herself very high, as do Lisa and Linda, in terms of getting things done. This includes the fact that she has delegated departmental responsibility for major drug-programs to Ashok, Dan, and her other two direct reports. However, when it comes to stepping back to lead with strategy and vision, Laura acknowledges that she has not had time to develop this area of her leadership. Linda adds that, while Laura mentors her subordinates very effectively on technical matters, her leadership in terms of career mentoring is missing. As well, by her own account, Laura works well and closely with individual colleagues from other functions.

On the other hand, her lack of preparation for cross-functional team meetings can create confusion and disconnect with important others from across the organization. Lisa and Linda both reported a striking example of an important meeting where Laura got into difficulty by focusing on technical operational details, rather than taking the perspective of a prepared and strategic leader.

Lisa tells the story that Laura and people from other functions on a drug program team were presenting information to SF Therapeutic board members. "It was a presentation," Lisa explained, "on very exciting data from a Phase III trial. It's a molecule that we're hoping to file and it exceeded expectations -- very good efficacy and very good safety." As a leader, Laura ought to have known that the board might ask tough questions, Lisa observed. However, Laura did not work with either of her superiors to prepare for the meeting. Lisa recalls, "She didn't communicate with me in order to

prepare for the meeting despite having 10-days' notice." Lisa added, "She didn't recognize how important the stakeholder group was and what types of questions they would ask." Linda recounts that Laura ended up creating a real problem at the meeting by raising a small safety concern -- really a tangential concern about a drug in a similar chemical class -- that looked to the high-level people like it could have presented a major issue for the drug. Laura didn't put the concern in its proper context, Linda says. Laura muddled through answering the board's follow-up questions and raised all kinds of alarms. Lisa continued, "She made it sound like there was a problem when there wasn't because she wasn't prepared."

Linda reflected, that if she were in Laura's shoes, "I would have gone to my boss in advance and said, 'I'm going to make this presentation, here's what I'm going to be presenting.' " We'd try to rehearse Q&A. Linda would have explained her thinking to her boss, her approach, ask for things she hadn't thought of, and if her boss was okay with the approach. "When I go into a meeting, I always think about what can go wrong," Lisa concurs. "I know the stakes are high. I know people are going to get challenged. I'm always thinking ahead of time, especially for a meeting like this. This isn't something you just wing."

Laura has some awareness of preparing for important meetings. She described helping her subordinate Dan to prepare for tough questions in an important meeting he had with regulators. But, in the meeting with the board, as with other cross-functional team meetings, Laura did not pressure-test her own presentation with her own superiors.

Laura's botched presentation created difficulties for her with a SF Therapeutics senior leader named Ritu who had recently taken over leadership responsibility for the

drug in question. Lisa observed that, although Laura owned the mistake in the meeting with the board, she has to repair the relationship with Ritu and recognize her as a key stakeholder. Laura, in Lisa's view, should provide Ritu with updates and answer questions for her, "…rather than just do the work and hope that it gets noticed."

Lisa provides a cogent perspective on Laura's tendency not to focus on aspects of her leadership:

> At the end of the day, she (Laura) may be like a lot of technical people who value the substance and view this relationship building as less consequential and insubstantial. That's a broadly held belief, by the way, amongst scientific people. You know, people will believe me because I'm a credible individual and because of the quality of my work and maybe not recognizing that there's also another part around your communication skills and the networking and relationship building. There's also a bias in R&D that that's sort of political maneuvering and we don't do that kind of stuff.

Too Enabling of Strong-Willed Colleagues

In keeping with Lisa's analysis, informants describe that, rather than managing important relationships or organizational politics, Laura can sometimes be too enabling of strong-willed colleagues. Interviewees describe Laura as working well with others when there is not interpersonal conflict. As mentioned, she is well liked and will discuss technical issues critically with colleagues, particularly one-on–one. In these situations without a challenging interpersonal element, Laura will take stands on technical issues and negotiate them with others. However, when colleagues are strong-willed, interviewees say that Laura often defers to them.

Ashok says that Laura sometimes reaches for a compromise rather than asserting her leadership. He describes an incident where Laura compromised on a clinical trial

design. Ashok, under Laura's guidance, wanted to recruit people for a clinical trial without abnormality in a certain lab value. He wanted normal values. Another team member argued in a strong-willed way that, due to time constraints, people with some abnormality should be allowed in the study. Ashok says that Laura agreed to a middle-ground compromise when, "the mid-way is not really the right answer." Ashok reflected that, as a leader, he thought Laura should not have compromised but felt she did so due to her, "good nature." Ashok commented, "It's the goodness of her nature that doesn't allow her to take that adversarial stance, when it probably is required for a situation." Emphasizing the point he said, "At times, a little bit bad is nice to have."

Lisa, Laura's former boss, describes a different kind of enabling on Laura's part. Lisa explains that Dan has been given a big project and that he is a very ambitious fellow, but not that experienced. Laura needs to lead Dan in such a way that he does not overreach his experience, ability, roles, and responsibilities.

Dan talked about his project as if he rather than Laura was in a position to determine strategy and roles, and responsibilities. It's complicated, notes Lisa because Laura is, "the one who promised him this role, so she doesn't want to dial back on that." But Dan is more junior than others on the program team. Their experience is more commensurate with Laura's and, "more realistically, she would be the program team person and he would be the supportive person," Lisa says. Lisa explains that Laura enables Dan by avoiding interpersonal issues of roles and responsibilities in favor of technical ones. Lisa notes that Laura needs to, "…very clearly delineate with Dan what her responsibility is and what his responsibility is and communicate that to the broader

cross-functional team." But, Laura does not do this. She does not clarify roles with Dan nor explain roles to other key members of the project team, Lisa notes.

Lisa reports that one consequence of Laura failing to clarify roles and responsibilities is that Laura enables Dan's strong-willed and ambitious planning and then, perhaps in an attempt to compensate, undermines him at program team meetings. Lisa heard feedback about a frustrating series of program team meetings that were meant to prepare Dan for presentations to European regulators – an exciting opportunity for him. Rather than preparing Dan for the program team meetings beforehand, Lisa heard that Laura did all the talking at the meetings, lobbed hard questions at Dan, and critiqued his answers in front of the team members. "I think it's very frustrating to Dan and the team," Lisa notes.

Lisa describes another example of Laura's enabling behavior, with Linda, her new boss. "She [Laura] has a conflict with Linda," Lisa explains. As Lisa tells the story, Linda is a very strong-willed individual who comes on strong. She has a lot of experience and is very smart. When Linda recently arrived at the company, she saw a lot of problems with a program on which Laura had been working for years and wanted to fix them all at once. Laura (rightly, in Lisa's view) did not feel that many of the fixes Linda demanded needed to be made. But, Laura did not push back on Linda's demands. Lisa concedes that Linda has her own issues with being authoritarian. (See Chapter 5 for Andrea's difficulties with Linda.)

Laura complained to Lisa about Linda's unreasonable demands. Lisa advised Laura to have a conversation with Linda. Lisa advised, "If she says, 'we're going to do it this way!' you say, 'Well, Linda, I have a slightly different perspective on that…I've

been on this program for a number of years. We can do some of those things. Some other things we can take care of much later on. They are not critical path right now.' " But, Laura could not find a way to have such a conversation with Linda. Lisa intervened to solve the problem by mediating between Laura and Linda in a once-weekly alignment meeting. A less enabling Laura might have initiated this kind of intervention herself.

Laura's LE and Blind Spots Interpreted through MC, EI, and the Hot and Cool Systems

Laura makes massive individual contributions to R&D with great technical sophistication and she has attracted excellent people and works well them. Her blind spots are Stop Enabling, Insecure Authority, and Problems On Teams

Laura's case presents a variation on the classic problem that can occur when a strong individual contributor becomes a leader. In the typical version, a strong individual contributor is promoted to a leadership position but lacks leadership skills. The organization loses in two ways: they lose a strong contributor and gain a poor leader. In Laura's case, the organization retained a strong individual contributor and gained a leader who shows effectiveness as a mentor to her team but doesn't lead enough in other contexts. Due to her prodigious work ethic Laura remains an immensely valuable individual contributor although she is in a leadership role. However, Laura does not show up as a strong or active enough leader in cross-functional contexts and across organizational networks. If she truly wants to, it seems that Laura could become a strong leader in all contexts.

In terms of MC and EI, I will argue that Laura might become a more effective leader by building a bridge from her technical complexity and one-on-one relating ability

to more complexity in other interpersonal interactions and in navigating organizational life as a leader.

Laura's technical meaning making seems as complex as Kegan's Self-Transforming Mind. Similarly, her technical sensemaking aligns with Fischer's level 12 of mental complexity. This is Fischer's Single Principles level in which many systems of thought are integrated into an elaborate unity. Concordant with Kegan's Self-Transforming Mind and Fischer's Single Principles, interviewees suggest that, in her technical work, Laura is truly multi-disciplinary, open, and reflective in her thinking. Informants suggest that, rather than thinking from the perspective of one medical specialty or R&D function, Laura sees each discipline as incomplete without other disciplines. She typically asks questions of colleagues from a number of different medical and functional perspectives when solving problems, writing, or editing. Her subordinates Ashok and Dan describe that, unlike others, she does not use templates of past documents. Instead, Laura balances technical considerations from multiple functions (e.g. pharmacology, toxicology, clinical operations, safety, regulatory) and multiple therapeutic areas (e.g. molecules targeting the same disease or molecules in similar chemical classes) in continually reflecting upon her assumptions and revising them as she learns. Lisa says that Laura combines these many systems of technical thought into clear and convincing written presentations. This sounds like the elaborate unity of Fischer's Single Principles level.

While bringing this technical sophistication to bear on her work, interviewees describe Laura as relating well to others in one-on-one contexts. Laura's subordinates stated that her genuine, pleasant, and positive style of relating helped to attract them to

SF Therapeutics. Despite frustrations with Laura's tendency to review their work too closely, Ashok and Dan also testify that they have a strong relationship with Laura. Similarly, Laura describes strong working relationships with colleagues from other functions. For instance, Andrea (from Chapter 5) let Laura know that she had an issue with some clinical trial data. Laura responded by sitting down with Andrea face-to-face to work out the issue. Informants confirmed that Laura is well liked across the organization and has many good relationships in place.

Laura's blind spots, Stop Enabling, Insecure Authority, and Problems on Teams, on close examination, seem to have the mark of limitations in MC and EI. Although Laura's technical complexity is extremely high and she mentors well, she does not demonstrate nearly the same complexity about her leadership behavior. Laura seems stuck in "contributor" mode and, although the germs of complex leadership behavior are there, they are unrealized. Making 4 great hires showed excellent leadership potential. However, even as she has mobilized these people by giving them responsibility, her interactions with them tend to be more like teaching technical content than leading. She micromanages them in terms of content, yet fails, as with Dan on the drug program team, to help him to adapt to his appropriate role. She lets him guide her, abdicating her leadership, without meaning to. In this example, Laura does not seem to see the intricacies of the situation and to understand that she has to deal with different parts of it, rather than focusing on the technical part. On the EI front, Laura seems not to exercise enough self-control. She does not control her impulse to be an individual contributor in favor of risking taking on a more active leadership role – an area in which she is far less competent. Laura's hot system does not seem to take over in these instances. She remains

engaged with her cool reflective system, but she does not direct enough of it toward leadership. In this example, Laura also demonstrates her insecurity about assuming authority as a leader. She sticks to focusing on her technical authority and abdicates her role as an organizational leader.

Laura's difficulties with self-control and MC also showed up in her botched board meeting, where she could not resist the desire to raise a fine point about a potential safety concern. The board did not understand the subtlety of the technical point and got very worried that there was a safety risk that did not actually exist. In this instance, as with Dan, Laura did not show a very complex view of the dynamics of the meeting. Presumably, Laura's hot system took over when she began talking about the fine safety point. Had she been reflective about the relevance and lack of evidence for the point and about the potential consequences of raising it, she may have kept the thought to herself. This example shows that she can run into problems in cross-functional team meetings by not being reflective enough, or showing enough self-control to focus on being a leader rather than a technical contributor.

Table 8-1. Scored Leadership Effectiveness Measure-LiChong, Andrea, Neil, and Laura

Item		*LiChong*[†]	*Andrea*[†]	***Neil***[*]	*Laura*
	Sensemaking *(average)*	*3.7*	*3.7*	*3.7*	*3.3*
1.	*Team*	4	3	4	3
2.	*Cross-Functional*	3	4	3	3
3.	*Organization*	4	4	4	3
	Relating *(average)*	*3.6*	*3.7*	*3.4*	*3.4*
	Team	4	3.7	3.3	4
	Cross-Functional	3.3	3.7	3.3	3.3
	Organization	3.3	3.7	3.7	3
	Inquiry (average)	3.3	4.0	3.3	3.7
4.	*Team*	4	4	3	4
5.	*Cross-Functional*	3	4	3	4
6.	*Organization*	3	4	4	3
	Advocacy (average)	4.0	3.0	4	3.3
7.	*Team*	4	3	4	4
8.	*Cross-Functional*	4	3	4	3
9.	*Organization*	4	3	4	3
	Connecting (average)	3.3	4.0	3	3.3
10.	*Team*	4	4	3	4
11.	*Cross-Functional*	3	4	3	3
12.	*Organization*	3	4	3	3
	Visioning *(average)*	*4.7*	*3.7*	*4.3*	*3.0*
13.	*Team*	5	4	5	3
14.	*Cross-Functional*	4	3	4	3
15.	*Organization*	5	4	4	3
	Inventing *(average)*	*4.7*	*4.0*	*4.7*	*3.7*
16.	*Team*	5	4	5	5
17.	*Cross-Functional*	4	4	4	3
18.	*Organization*	5	4	5	3
	Change Signature *(average)*	*3.7*	*4.0*	*4.0*	*3.0*
19.	*Team*	4	4	4	4
20.	*Cross-Functional*	3	4	3	2
21.	*Organization*	4	4	5	3
	Team Performance *(average)*	*4.3*	*4.0*	*4.0*	*3.3*
22.	*Team*	5	4	4	4
23.	*Cross-Functional*	4	4	4	3
24.	*Organization*	4	4	4	3
	LDMA	**11:2**	**11:3**	**11:3**	**None**
	MSCEIT	**73**	**95**	**95**	**103**
	(Overall Average) **LE**	**4.09**	**3.83**	**4.02**	**3.3**
	LE Raw Score	24.6	23	24.1	19.8

9

Effective but Invisible in the Organization: The Case of Jennifer

Blind Spots: Lacking Visibility, Problems On Teams

Jennifer grew up in the San Francisco Bay area. She enjoyed biology and chemistry in high school and had a strong penchant for helping people. Early in her college career, she decided that nursing would be a good fit with her strengths and interests.

After Jennifer became a Registered Nurse, she worked at UCSF Medical Center as an operating room nurse. She assisted with complex surgeries and also focused much of her energy on post-operative care. She enjoyed the challenge and fast-pace of her work. However, the long hours and intensity began to wear on her after she had been doing it for over a dozen years. She loved taking care of patients and the contact with their families, but eventually began to feel burned out. So, she decided to make a career shift within nursing. She tried a number of roles including research and administrative, but none of them felt satisfying.

Looking for a change, Jennifer applied for a position in clinical operations at SF Therapeutics in response to an ad in the paper. The hiring managers were impressed with her references and work ethic. She got the job. At the time, Jennifer knew little about biotechnology and she found her new role at SF Therapeutics interesting. Her new job also helped her stay connected to her motivation to take care of patients – both because she was helping to develop new therapies for patients and because she helped implement clinical trials. The position provided a more regular schedule than nursing and met her desire for better work-life balance.

Jennifer arrived at SF Therapeutics 20 years ago. She is one of a handful of long-term employees scattered around the company. For the last 15 years, she has been a Senior Director of Clinical Operations and she currently has 5 Associate Directors reporting to her. A number of Jennifer's direct reports or their staff have been in Jennifer's department for a long time – some approaching 10 years or more. Interviewees suggest that Jennifer has inspired that longevity and loyalty.

In her clinical operations role, Jennifer helps set up and manage clinical trials. She is responsible for running a group that is in charge of the technology used in clinical trials, maintaining the database in which clinical trial information is stored, and ensuring that data is entered properly and on time into that database. Laura works closely with her team and handles a large workload. Deadlines are often tight. Her department contains people at a wide range of technical skill levels, from entry-level up to Ph.D.'s.

According to her boss, Hector, the work done by Jennifer and her department is a support function and, as such, others in the organization can sometimes overlook its importance. But, Jennifer and her team do important work, which helps to ensure the successful execution of clinical trials. Her department's work supports the medical and scientific input into clinical trials and supports the follow-up work by biostatistics, safety, medical, and regulatory. Therefore, Jennifer's department interacts with many functions in the company, although, as Hector notes, their work may be below the radar of leaders in those functions and may be somewhat taken for granted. Jennifer's scores on *Visioning*, *Inventing* are high, reflecting the good job she does with the direction for her team and creative, effective problem solving with her direct reports.

Too Focused on Her Own Team

Interviewees, including Jennifer's boss, another superior, and two of the Associate Directors she manages, report that Jennifer works extremely well with her team and is admired by its members. Her team does an excellent job staying on top of a high volume of work and delivers good quality results. However, some, including Jennifer, wonder whether she is too focused on her team. Respondents suggest that Jennifer could have a bigger impact as a leader at SF Therapeutics by seizing opportunities to have greater influence on cross-functional teams and by leading more actively with other leaders across organizational networks. Interview data show Jennifer's strengths in supporting her team, managing her team for results, and opportunities for Jennifer to be even more effective by directing her leadership focus beyond her team.

Supports and Develops her Team

As Jennifer describes it, an important part of her approach to managing people is for each person to feel supported, engaged, and that each has opportunities for development. "I try to … understand the individual and their interests," she says. Jennifer continues, "It's important … to understand how you can create the right kind of developmental opportunities and keep them engaged in their work." As an example, through meetings Jennifer convened with her own department she discovered that some lower-level people on her team felt like they did not have input into their own work. They just felt like they were being told what to do. In response, Jennifer worked with their managers to create development and career ladders for each person. She also insisted that each person be accountable for his or her own career ladder and encouraged each person to re-engineer processes by which she of he worked.

"Her people really like her," Sarah, Jennifer's superior, says. Sarah says that Jennifer's direct reports nominated Jennifer for a leadership award. Jennifer's boss Hector, recalls that her direct reports clearly indicated that they like her approach by nominating her for a leadership award. "People felt that Jennifer was very close to them …was very authentic, really understood … their needs, and was readily available to provide support in a number of different ways," Hector recalls. He goes on to say that Jennifer provides support with technical issues and is available to help her team deal with people management issues. Jennifer, he observes, is very knowledgeable about the very technical aspects of data management. She is also very good at helping her team manage people on their own teams as well as their interactions with people in other functions.

Patricia, a subordinate, reports that Jennifer tends to be very supportive, especially when things get stressful. "The only time I actually give her feedback is when I'm overwhelmed and things aren't going well and I end up crying," Patricia says. "That tends to go really well," she continues. "She's a very nurturing person…She definitely responds when you're honest. I've had good success with tears," says Patricia. Sarah, Jennifer's superior concurs, "Her people feel supported…She gives very detailed direction and she's very supportive."

Despite being supportive, her subordinates say that Jennifer does not shy away from being direct. "If there's something she wants done or she's not happy with, she'll bring that up," Patricia says. But, Patricia adds, "then she gives people a chance to discuss and come up with our own solutions… and she'll try to guide us. If she doesn't agree, she'll let us know. The communication is pretty open."

Jennifer is also open about how people get work done. “We have a flexible work environment,” reports Amy, another subordinate. Amy explains, “People can work from home as they need to … [Jennifer has] found that people are equally productive.” Amy says that Jennifer’s staff appreciates this attention to work-life balance. It creates a strong feeling of trust and makes people work harder.

Jennifer’s supportiveness and attention to work-life balance also helps inspire loyalty from her staff. “I feel like her people are very loyal. She has very low attrition rates in her group,” Sarah, observes. “People are very loyal to her…they work very intensely,” Hector confirms. “Our department has a very low turnover,” Amy concurs. “People in this department have known each other for 10 or 15 years,” says Amy. However, Sarah wonders if Jennifer’s focus on supporting her people clouds her judgment about peoples’ possible poor performance. “She really cares about her people to a fault … I think she might manage her group so she doesn’t have to deal with [performance problems],” asserts Sarah. Nonetheless, Jennifer works hard to improve her people’s performance.

All informants note that Jennifer works to develop her people. Hector explains, “She’s clearly a team player… always looking for opportunities for growth for people in her organization.” Amy says that she wanted a promotion and went to Jennifer to ask her, “What do I need to do to get there?” Jennifer said that Amy needed more visibility within the broader clinical operations function. Then, Jennifer arranged meetings for Amy to lead and gave Amy more visibility. “She really made this happen,” enthuses Amy. Hector, her boss, recounts, “I mentioned to Jennifer that I had a personal interest in looking into an area that's called quality risk management…. Jennifer immediately

reacted, ‘Listen, I think there's one person in my group that would really like to be engaged in a new area for her … exploring her skills and also do [sic] some research and learn.’ ‘’ The person started with Hector’s project. Later, more individuals were added, with Jennifer’s direct report continuing as the lead. “I’ve seen her do that for people in her group over and over,” Hector emphasizes. Another way Jennifer works to develop people is through delegation.

Manages People for Effective Results

Patricia, a subordinate, comments that Jennifer’s delegating helps develop people and enables the department to achieve good performance. Patricia appreciates Jennifer’s skill in delegating. “With my group, it's a pretty high-pressure group and there are all these timelines. And some of these deliverables are very high profile to the company,” Patricia begins. She continues, “I feel like she [Jennifer] trusts me and she trusts my judgment. So she really leaves it to me and to my group to work it out.” Patricia adds that there are times that red flags are raised by one of Jennifer’s peers and that Jennifer will come back and investigate. But, Patricia always feels supported when that happens.

Others also note that Jennifer delegates well. “She has very clearly defined roles in her group,” says Sarah, a superior. “And, she has people who are assigned to those roles and those are the people who are doing those jobs…From that perspective, I think she's delegating very well,” Sarah adds. Jorge concurs that Jennifer is, “…always making sure that everyone in her organization is working in the appropriate role.” He adds that Jennifer is also looking for new things to delegate to people as in asking subordinates to attend meetings where she was the person invited. The subordinate has an opportunity to represent the group in Jennifer’s place. Amy, a subordinate, provides an example where

Jennifer was trying out a new vendor in a pilot stage and handed the relationship off to her. “We’re still in the pilot state, but we're going to get to a steady state and we need to get an infrastructure,” Jennifer told Amy. “Jennifer kind of handed stuff to me, like the contract, “Amy recalls, “…and said, ‘Go do what you need to do and give this some structure.’ ”

Jennifer has also delegated on a large scale – through offshoring (having part of the department’s work done in another country) -- in response to a downsizing that occurred at SF Therapeutics. “We had a third of our workforce cut. So, we had to figure out how to do the work without more internal … resources. At the time, we were also looking at offshoring,” Jennifer recalls. She recognized that, “the whole process of offshoring introduced a lot of anxiety,” among people in her department who feared for their jobs. Jennifer felt unsure about the initiative, as well. In response, Jennifer worked with her direct reports to craft a vision for offshoring that would answer the question, “How [are] we … going to be able to get people on board with this and address their anxiety?”

Jennifer adopted an approach which she refers to as, “a huge undertaking,” of communicating transparently with staff; figuring out organizational shifts that could be made to adopt offshoring while retaining her existing people; and selecting the offshore Contract Research Organization (CRO) carefully. Jennifer’s “huge undertaking,” done judiciously and slowly, made her department one of the first within SF Therapeutics to pursue offshoring.

As part of the process, Jennifer went to India with her superior Sarah to interview potential CRO’s. Sarah recalls that, at first, Jennifer was worried that offshoring would

simply eliminate people's jobs. But, Sarah helped Jennifer see that offshoring, in Sarah's words, "wasn't just about saving money. It was about having more access to resources…India has a lot of resources. They can flex up … probably hire 20 people in a week, whereas it takes us a year to hire 20 people." Jennifer bought into this vision and communicated it to her department.

Jennifer held multiple open sessions with her whole department and also smaller sessions where people got honest information and could ask any questions. "At the end of the day," Jennifer remembers, "I told them, 'this has been proven in industry and there's no way that we can go back and say that we can't do this. We can do this. Others have done it. We just need to work together to find the right way for us.' "

Patricia, a subordinate, reports that Jennifer ultimately re-organized the department. Employees went from wearing a lot of different hats to focusing on newly created roles that would work well with the functions being done in India. "Her idea was to create new roles within the department," Patricia explains, "…move people into these roles where they had the right skill sets. A lot of it was to help with her outsourcing." Patricia says that Jennifer showed a lot of vision in the way she implemented the offshoring. She brought in niche providers from India that could work within the systems and processes established in her department. Further, Amy says that as the offshoring rolled out Jennifer managed things carefully. Jennifer had people from her department train the service providers and created a lot of documented work instructions.

Jennifer says that, once she adapted to the idea of off shoring, she had a strong vision for how it should work. She met with a lot of resistance to her vision for re-organizing the department from staffers who feared the changes. By trying to be

transparent and letting people express their concerns and solve problems, she gradually got her staff to buy in.

Jennifer reflects that one thing which might make her a more effective leader would be if she moved more quickly with initiatives, such as preparing for offshoring. “I can let things linger too long,” she says. Nonetheless, when Jennifer does move things forward, she gets effective results.

Jennifer’s boss Hector says that Jennifer encourages an integrated team approach and gets high quality output. An important function of Jennifer’s department is to make sure that the clinical trial data is clean and of high quality, so that biostatistics can work on it. Hector says that Jennifer has her department aligned on that mission and also works in integrated ways with biostatistics, which is the primary customer for her department’s work. Hector notes that much of the data cleaning gets done by the Contract Research Organizations (through offshoring) and that Jennifer and her team have managed to keep the quality from these vendors high through vigilance and training. Sarah adds that Jennifer’s, “organizational skills are exceptional.” Finally, Hector says that Jennifer’s group is efficient. Based on research data on cycle times (for getting clinical trial data ready), Hector reports that Jennifer’s group’s, “Cycle times are top quartile…and they’ve done that very consistently…year after year.”

Could Lead More Cross-Functionally and with Colleagues

Hector, Sarah, Jennifer’s subordinates, and Jennifer herself note that Jennifer is a quiet leader. Sarah notes that, in general, Jennifer’s group is a quiet group, so that style of leadership works well. But Jennifer has not adapted her quiet style to work well beyond

her group. Jennifer seems to miss opportunities to user her quiet leadership in order to have greater influence on cross-functional teams and across the organization.

Jennifer acknowledges that she sometimes does not attempt to lead beyond her team:

> I'm in a cross-functional setting and that could be a mechanism [function] of being here so long, I sometimes find myself not challenging because I have in the past and it hasn't gone anywhere. Or, I just don't feel like the group's ready to hear it. There's just a whole host of reasons why sometimes I don't. And I do get that feedback from my boss and from others. 'You've built something so great in your group, but … we don't necessarily always hear you speak up in some settings.'

Jennifer goes on to admit that, cross-functionally and in conversations with her colleagues across organizational networks, she has a working assumption about how things will turn out which may not be correct. For example, she says that she sometimes assumes that a particular group will reject her input as in the past, even though the leader and others in the group have changed. Jennifer also confides that her caution at speaking up is sometimes related to not wanting, "…to be seen that you're shooting things down." However, with her own team Jennifer is quite able to find ways to intervene and advocate for her views without discouraging people. Jennifer acknowledges that she sometimes comes to regret not speaking up beyond her team. She may withhold her comments, believing there will be a more effective (more positively received) way to address things in the future. But, then she confesses that she ends up thinking later on, "If I had only opened up my mouth, we wouldn't be in this place right now."

Hector notes that, Jennifer could, "communicate more or communicate better," beyond the boundaries of her own team. He holds that some of Jennifer's achievements would help the rest of the organization, "…in terms of broader diffusion and sharing of

the things that she may be doing." Such sharing, Hector says, "can also help her broaden her own views on what can be done." Both Hector and Jennifer's superior Sarah think that if Jennifer shared more about what she does with others, she, and her department would get more credit. And getting more credit might have positive results for Jennifer's leadership in the wider organization. It might be a confidence and morale booster for Jennifer that could incline her to be less cautious about intervening with colleagues and on drug-program teams. In addition, being recognized by other departments and cross-functional teams might help convince others to work with and be influenced by Jennifer and members of her department.

Jennifer's subordinate Patricia notes that it would be helpful for her if Jennifer reached out to and communicated with her own peers more often and more effectively. Patricia explains that it can be hard, at her level, to influence others to work with initiatives started from Jennifer's group. For example, Jennifer and her team are trying to improve their system for electronic data capture (EDC). Patricia says that Jennifer would like other departments and cross-functional teams working on clinical trials to use the existing EDC system better and eventually to move to a more current system – to move completely away from paper. However, Jennifer does not make the case to her peers and to drug program teams for the EDC enhancements. Without her leadership, people like Patricia have difficulty getting people in other departments to buy in to Jennifer's vision for EDC.

In line with Patricia's experience, Jennifer reports that, cross-functionally, "I have a little bit more anxiety and let things languish more than they should." Sarah says that Jennifer sometimes begins to intervene, but then gives up without explaining her

rationale for withdrawing. Hector adds that Jennifer tends to avoid, "…confrontation or anything that would be perceived as being too tough or firm." As a result, she's more inclined to listen to other people's opinions, rather than volunteering her own, let alone advocating for a strong position.

Jennifer explains that it's outside her comfort zone to intervene cross-functionally and with colleagues, when she doesn't have strong relationships – like the ones with her long-serving team members. She also acknowledges that if she simply went to colleagues across the organization more often and raised issues, she would resolve problems that impact her group and clinical trials more generally.

As if to emphasize the point that it would be beneficial to intervene more, Jennifer tells of one time that she did intervene cross-functionally and it turned out well. Her colleague in Information Technology wanted to lead a project to develop a web-based function for a group of investigators to communicate with each other. Jennifer raised the idea that, although technology was an important ingredient in the initiative, the medical and scientific researchers had an even bigger stake in the process. Her colleague was initially upset, but, once he heard the rationale from the doctors and scientists that had a big stake in the process, he realized that Jennifer was right. It did make more sense to have clinicians lead the project. Jennifer intervened, moving beyond her typical comfort zone, and contributed to a productive outcome.

Sarah notes that Jennifer's preference for staying in her comfort zone in interpersonal relations sometimes leads to performance problems. Sarah recalls an instance where Jennifer had an opportunity to work with a high-performing individual. This person had some rough edges and could be emotional about not being appreciated.

Instead, Jennifer chose to work with another person who would get the job done, but with less drive, motivation, and creativity. Sarah explains that Jennifer, "…will give up someone who can really drive things forward in favor of someone who may not be a driver, but they don't have those rough edges…. But she does like things orderly. She likes people that way, too, people that are predictable."

Jennifer's desire to keep things predicable and within her comfort zone also extends to technology. While acknowledging that Jennifer has had a solid information technology strategy and that her performance is good, Hector wonders if Jennifer is as innovative as she might be with technology. Sarah concurs that Jennifer might be more cutting edge in terms of technology. LiChong, for a contrasting example, boosted his team's productivity by acquiring cutting edge machinery. Sarah thinks that if Jennifer got out to professional industry meetings she might become more aware of leading technologies and perhaps be more inclined to adopt them. Hector summarizes that Jennifer is, "…interested in looking into new ways of doing things. But also, in some ways, she's comfortable with some of the other areas and prefers to keep them as they are for as long as possible."

Jennifer's LE and Blind Spots Interpreted through MC, EI, and the Hot and Cool Systems

Jennifer does an excellent job supporting and leading her team and she manages people successfully for effective results. Her blind spots are Lacking Visibility and Problems On Teams

According to interviewees, Jennifer exhibits solid leadership of her long-serving team in a way that is supportive, oriented toward subordinates' development, and which

produces high quality and efficient performance by her team. Respondents describe Jennifer as a quiet leader who seems to lead with a solid ability to relate well to her staff, with her complex thinking about interpersonal relationships and about various ways in which her group fits into organizational systems within R&D. However, I will make the case that greater complexity in Jennifer's interpersonal and organizational sensemaking might help her leverage her quiet ways. It might enable her to lead even more effectively by directing more of her leadership focus to colleagues and cross-functional teams.

Jennifer's strengths in relating to her staff are reflected in her staff's nomination of her for a leadership award. The fact that many of her staff have been with her for 10 years or more is also suggestive of her skill in building strong relationships with them. As well, interviewees, both superiors and subordinates, reported that Jennifer is constantly on the lookout for development opportunities for her staff. She is also very active in translating such opportunities into action. Interviewees say Jennifer is supportive of her staff. Jennifer creates opportunities for her staff to be heard, become informed, and feel supported -- especially in instances where they might feel anxious (e.g. the move to off-shoring). Jennifer's approach to work-life balance and the well being of her staff also seems to have solidified her relationships with them. Interviewees said that Jennifer's staff trust her, feel supported, and therefore work hard for her and remain loyal.

A shortcoming in Jennifer's MC and EI as a leader is Sarah's comment that, in keeping with Jennifer's strong orientation toward order, she likes people that are somewhat even and predictable. With a more complex view of the importance of diversity of styles and skill-sets on a team, Jennifer might be more effective. For example, she might have one or more people on to her team to help SF Therapeutics

transition to electronic data capture (EDC) in their clinical trials, rather than having to manually input data. This is an initiative Jennifer's boss, Hector, has been pushing her to take on. Instead, she has maintained lower-level technical people in her group who do not have the skill sets to move EDC forward. It is possible that as Sarah suggests, Jennifer is reluctant to go outside her comfort zone, arguably because she is afraid. With greater EI she might manage that fear, which would be processed by her hot system. By exercising self-control, she might enable her self to engage her cool cognitive system around thinking carefully about how to increase diversity on her team and bring on more advanced skills sets, capable of moving EDC forward. But, just engaging her cool cognitive system is not any guarantee that she would have the complexity to understand how to lead implementation of EDC, which would involve working with colleagues from many different functions.

The issue of Jennifer's reluctance to be assertive with colleagues from other departments and disciplines arises from an assumption that, as has sometimes happened in the past, she will not be listened to. As in the previous paragraph with a more complex view, she might reconsider the assumption that she won't be listened to, try to take the perspective of her colleagues from other disciplines and find ways to get their attention (such as carefully analyzing their interests and appealing to them). As well, the fear of being ignored, possibly even a fear of rejection, might be overcome through self-control. As above, this would help attenuate her hot system which processes her fear and help her engage her cool cognitive system to figure out how to try to persuade her colleagues to follow her.

Also, with greater strength in EI it's possible that Jennifer might have greater flexibility to work well with more emotionally dynamic colleagues. Further, it may be that one of Jennifer's EI-related strengths– her ability to build long-term high-functioning bonds with others – is also a limit for her leadership.

Jennifer told me several times that she is less effective with people that she does not know well and is more inclined to let things languish with them. All interviewees agreed with Jennifer's confession. They noted that Jennifer's caution in intervening in the absence of strong relationships is problematic for her leadership on cross-functional teams and with colleagues across the organization.

One might be tempted to write off Jennifer's inactive leadership on cross-functional teams and with colleagues as a sole consequence of her quiet style. Support for this view might come from studies on leadership and personality which suggest that gregariousness is associated with being in a leadership position (e.g Hogan et al., 1994). However, when one looks at the studies, one sees that such evidence shows correlation rather than causation. As well, most of those studies associate gregariousness with seniority rather than with effectiveness. Further, even if Jennifer's quiet style makes her less inclined to speak up with colleagues and on cross-functional teams, more complex sensemaking might help her past this disinclination.

Jennifer has a complex view of interpersonal relationships on her team. She also thinks about how her team interacts within the organizational systems within R&D. This fits her score of 11:2 on the LDMA. A score of 11:2 on the LDMA is at the level of Abstract Systems in Fischer's Skill Theory and is equivalent to mid-way through Kegan's Self-Authoring Mind. At this level of MC, one has the capacity to internally construct

and outwardly drive her own agenda and to take competing perspectives into account. In moving her clinical operations department toward an off-shoring model, as one example, Jennifer demonstrated these capacities. Once she bought into the off-shoring concept, she led with Self-Authoring interpersonal complexity. She convened sessions within her department to enable her staff to air their concerns. She created conversational spaces for her staff that held different people's competing perspectives. This helped surface her staff's anxieties. In response, Jennifer drove her off-shoring mission forward -- exhibiting complex thinking about the organization consistent with Kegan's Self-Authoring stage of development. She addressed her staff's anxieties about losing their jobs by engaging them in re-engineering their clinical operations processes so that people's jobs dovetailed with work done by the offshore contractors. For instance, one person's job moved from data management to managing contractors who did data management for SF Therapeutics.

Jennifer's blind spot, Lacking Visibility, has the earmarks of insufficiencies in EI and MC. Jennifer's boss Hector, reports that the R&D organization has much to learn from Jennifer's successes, such as moving her team toward an off-shore model, having much of the work her team was currently doing performed by Contract Research Organizations (CRO's) in India. Jennifer formulated and executed this plan in a highly skillful way. She analyzed and pilot tested the arrangement, dealt with her staff's anxiety about the change and what it meant for their roles, helped her staff members define new roles for themselves, including acting as interfaces for CRO's, went over to India to set things up, and then managed the transition to the new off-shore model by putting in place systems for ensuring the quality of work done by the CRO's and helping her staff adapt

to the change. The move has been very successful as it has lowered costs and, more importantly, given her department the ability to grow and contract along with the demands made upon it.

As with other difficulties in which Jennifer's response is to withdraw, her reluctance to raise the visibility of her group, despite persistent urging from her boss to do so, has the mark of the need for greater EI and MC. The dynamic may be similar to the one mentioned a couple of times already above. Her reluctance to increase visibility for her organization suggests an inertia born of complacency in this regard (though not in most others!) and perhaps fear. Similar to speaking up more across the organization and bringing more diversity and greater technical skill on to her team, Jennifer says she knows she should do it and doesn't understand why she does not. Greater MC here might enable her to reflect more carefully on the benefits of raising her group's profile within the organization. It would not only help other groups, it would make it easier for her people to interact with other groups. As one subordinate explained, it would be easier to get the cooperation of other groups if they understood what Jennifer's group does and how well they do it. But, even if Jennifer was more convinced about the benefits of working to increase her group's visibility, it might still be very difficult for her to make that change.

Table 9-1. Scored LE Measure-LiChong, Andrea, Neil, Laura, and Jennifer

Item		*LiChong*[†]	*Andrea*[†]	***Neil***[*]	*Laura*	*Jennifer*[†]
	Sensemaking *(average)*	*3.7*	*3.7*	*3.7*	*3.3*	*3.7*
1.	*Team*	4	3	4	3	5
2.	*Cross-Functional*	3	4	3	3	3
3.	*Organization*	4	4	4	3	3
	Relating *(average)*	*3.6*	*3.7*	*3.4*	*3.4*	*3.6*
	Team	4	3.7	3.3	4	3
	Cross-Functional	3.3	3.7	3.3	3.3	3
	Organization	3.3	3.7	3.7	3	3
	Inquiry (average)	3.3	4.0	3.3	3.7	4.0
4.	*Team*	4	4	3	4	4
5.	*Cross-Functional*	3	4	3	4	4
6.	*Organization*	3	4	4	3	4
	Advocacy (average)	4.0	3.0	4	3.3	3.0
7.	*Team*	4	3	4	4	3
8.	*Cross-Functional*	4	3	4	3	3
9.	*Organization*	4	3	4	3	3
	Connecting (average*)*	3.3	4.0	3	3.3	3.7
10.	*Team*	4	4	3	4	5
11.	*Cross-Functional*	3	4	3	3	3
12.	*Organization*	3	4	3	3	3
	Visioning *(average)*	*4.7*	*3.7*	*4.3*	*3.0*	*4.7*
13.	*Team*	5	4	5	3	4
14.	*Cross-Functional*	4	3	4	3	5
15.	*Organization*	5	4	4	3	5
	Inventing *(average)*	*4.7*	*4.0*	*4.7*	*3.7*	*4.3*
16.	*Team*	5	4	5	5	5
17.	*Cross-Functional*	4	4	4	3	4
18.	*Organization*	5	4	5	3	4
	Change Signature *(average)*	*3.7*	*4.0*	*4.0*	*3.0*	*3.7*
19.	*Team*	4	4	4	4	5
20.	*Cross-Functional*	3	4	3	2	3
21.	*Organization*	4	4	5	3	3
	Team Performance *(average)*	*4.3*	*4.0*	*4.0*	*3.3*	*3.7*
22.	*Team*	5	4	4	4	5
23.	*Cross-Functional*	4	4	4	3	3
24.	*Organization*	4	4	4	3	3
	LDMA	**11:2**	**11:3**	**11:3**	**None**	**11:2**
	MSCEIT	**73**	**95**	**95**	**103**	**88**
	(Overall Average) **LE**	**4.09**	**3.83**	**4.02**	**3.3**	**3.93**
	LE Raw Score	24.6	23	24.1	19.8	23.6

10

Star Performer who needs to Share the Spotlight: The Case of Steve

Blind Spot: D**istance and** D**ecenter**

Steve grew up in a large tight-knit family in Northern California. After high school, he attended UC Davis, where he obtained both a Bachelor's and a Master's degree in Chemistry. Following his academic training, Steve took his first job at Dow Chemical in pharmaceutical sciences. He worked at Dow as a chemist for five years.

In the lab at Dow, Steve did basic research, which he describes as being, "as far away from a final product as one could be." He eventually began to feel isolated doing bench science. Fortunately, from his point of view, in the course of his work, he had the opportunity to work on filing patents for the company. Steve found the patent work intriguing and became interested in patent law. In general, he wondered how things worked in the world of industry beyond his small lab.

To explore career options, Steve took advantage of a career development program at Dow. He thought the program would land him in a rotation with the legal department. Instead, the company offered him an opportunity to work in the Regulatory Affairs department. Steve had never even heard of regulatory work, but it seemed interesting and he decided to try it. During the 6-month trial he became hooked on regulatory work. He discovered that in preparing regulatory filings one had the opportunity to experience interesting issues from the perspectives of many different fields. As Steve explains, "… it wasn't just about being a chemist anymore. I got to dabble in what it's like to be a

statistician, what it's like to be a toxicologist, and what it's like to be a physician." After the trial, Steve was offered a job in Regulatory, which he gladly accepted. He loved learning things in fields outside of his expertise as a chemist and working as part of dynamic multi-disciplinary teams. He worked happily in the regulatory function for the next 5 years. Steve then continued his regulatory work at a smaller biotech company in San Francisco for 2 years.

He met his current boss at SF Therapeutics, Suzy, at a biotech conference. Suzy was looking to hire someone with Steve's level of experience and found him smart, passionate, and likeable. Others in the company agreed and Suzy hired Steve. In his 10 years at SF Therapeutics Steve has risen to his current position of Senior Director of Regulatory Affairs. Interviewees describe Steve as a dynamic and highly effective leader who is influential in shaping the regulatory filings on which he works.

Steve explains that in Regulatory Affairs he works with many teams. He helps shape drug development and clinical trials so that they lead to successful regulatory filings with agencies like the FDA and its counterparts in Europe and elsewhere. His goal is to have drugs approved – either new drugs or new approvals for existing drugs – and to get them approved in a way that gives SF Therapeutics competitive advantage. Advantage over competitors can come from getting to market faster or having claims about a drug approved that are more valuable to patients and doctors than approvals received by competitors.

Steve says that it's meaningful to him to have such influence over the way that drug filings move forward. He works with cross-functional teams to educate them about FDA requirements, to learn what the teams want to do, and to generate strategies and

options for how to approach filings. Steve can and does influence how clinical trials are designed. He gets involved in helping to shape details such as which studies are done or not done on drugs under development. Steve explains that, "…sometimes there's a way that we want to do things [and] sometimes there's a way that the FDA would prefer us to do it. And a lot of times I try to … balance the two to figure out what is the best option, in my mind, to bring something forward so that we have a product that has a competitive advantage."

Respondents say that Steve displays intelligence and fluency when working with people from various disciplines and backgrounds. He listens to and learns about the concerns of physicians, drug safety personnel, toxicologists, pharmacologists, statisticians, FDA regulators and others, in his process of finding a productive way to respond to, influence, and balance their concerns.

Although Steve is a middle manager, respondents say Steve is highly influential with senior managers as well as with peers and his staff. The company selected him, for example, to serve on a special team whose other members were all senior managers. The team's task was to come up with a strategy for getting one of the company's drugs that had been pulled from the market back on to the market. As a peer, Steve is a very skilled listener and persuasive at motivating others to buy into his favored strategies. As a manager, Steve works closely and effectively with his staff. His goal is for his staff to influence filings as constructively as he does. Despite his careful mentoring, as such a persuasive and influential manager, Steve's superiors note that he has to be careful to make sure to allow his staff room to shine, as well.

Table 10-1 shows that Steve has the highest LE scores, among the case-study subjects, on every dimension of the measure.

A Highly Effective Leader Who Can Improve By Decentering to Let Others Lead

Interviewees suggest that Steve is a dynamic and influential leader who employs complex sensemaking to work well with teams, relates effectively to self and others, and achieves excellent results. Informants also note that with his abundant strengths, Steve can be an even better leader by holding back on his leadership behavior a little bit so that his direct reports have more opportunity to shine as leaders.

Excellent on Teams

Steve reports that he works very closely with cross-functional drug program teams and many other teams to establish regulatory filing strategies for various projects. His boss Suzy explains that, from a regulatory standpoint, teamwork is not easy. "Regulatory is a lot about 500 ways to say "No" or "maybe", but not sounding like it," she says. "It's incredibly matrixed out there," she notes, referring to the fact that many teams are composed of individuals representing different functions with competing interests. Individuals on such cross-functional teams must lead others from other departments over whom they have no authority. "Everything we do," she continues, "is getting people from the clinical side, the safety side, the pre-clinical side, the legal side …trying to bring people along and espouse ideas… even though *they* are the technical experts, telling them what we think should be proposed." Steve brings people along toward regulatory strategies, informants say, with skills like listening, perspective taking, preparedness, collaboration, and strategic critical thinking.

Steve explains that listening, in addition to sharing his own ideas, is central to his leadership on teams. He says, "My concept of a leader is someone that's willing to listen to and share ideas." Steve notes that he feels fortunate to work with the people he does because, "…I think some of them generate some of the best ideas I've ever heard in terms of how to approach problems, solutions." The other case-study subjects in the study work with many of the same people, but do not look at listening to them as so important. Steve believes, "…if groups are listening to one another, well, then we come to a solution that ultimately we think is the best path forward."

As will be described further below, informants all remark how skilled Steve is at listening. For instance, his boss Suzy notes that Steve's ability to actively listen to what others say and reflect it back to them helps establish his credibility and reasonableness and gets people to listen to him. She observes, "…[he] really listens to what people say and thinks through it… and finds a middle ground that's acceptable to people and is also technically sound." Lisa, another superior, notes that in leading cross-functional team meetings, Steve solicits the thoughts of people around the table and synthesizes what people say, and reflects critically upon others' comments in a way that enables groups to come to agreement. Behaving this way on teams over time has helped to make Steve influential. Listening to others and sharing his thoughts, as influenced by others, have primed others to listen to Steve. At this point, Suzy comments that, "He can turn a room around with what he's saying. People are going to listen to him and he has a big impact."

Lisa, Suzy, and Steve's subordinates report that he is excellent at taking others' perspectives. Lisa observes, "He respects the subject matter experts…understands the scientific thought process…[and] is very good at putting… [a] highly technical set of

considerations into plain language." To understand others and guide a group to agreement, Steve will probe different technical points of view. Lisa says that in meetings, "…he'll ask a question. He'll say, 'So, why would you approach it this way? What are the advantages of doing it this way? And what do you think might be the consequences of doing it this way?' " By pressure-testing others' scientific perspectives in this way, Steve helps cross-functional teams to think together constructively.

Part of Steve's skill in perspective taking is that he allows others to help him reflect on his own perspectives. Suzy notes, "He can speak the language [of the different functions], but also knows when to defer – that if it's safety, safety should really weigh in. We can give our opinion, but we need to hear from them. It's their call…"

Steve acknowledges that he might be even more effective if he listened to others' perspectives even more and reflected more on his own preferred strategies. He reports an example where others had an approach for bringing a product forward that he did not think was feasible. He thought of their approach as "Swiss Cheese" because it was, in his mind, full of holes. Their approach also seemed too aggressive. Steve's own preferred approach, by comparison, he thought of as "American Cheese" because, in his mind, it was solid. When others were describing the "Swiss Cheese" approach, Steve recalls, "Part of me was waiting for them to finish, so I could say, 'Guys, this is not a reasonable approach, and here's why it's not reasonable…and here's where we're going to go back to.' " But, on reflection, Steve realized he might have been overlooking good possibilities. "A good team of bright people thought about this and this is what they came forward with," Steve reflects. Instead of advocating for his "American Cheese" approach, Steve acknowledges that he should have been careful not to be so quick to shut

down the possibilities in the others' approach. He thought there could have been value in their approach that he overlooked.

Suzy reports that Steve often takes care to take her perspective and that even though he's passionate about his ideas, "I don't' think it's ever to a point where he won't change his mind." For example, if Steve wants to have a meeting with others right away and Suzy thinks it's better, strategically, to wait, they will hash it out. If Suzy's view looks to be right, Steve will, "definitely change," his mind. Consulting with others before and after cross-functional meetings is an important part of Steve's preparedness.

Lisa says, "Steve is very passionate about what he does…he radiates enthusiasm [and] is also very well prepared." Lisa explains, "When he gathers people together on a topic, he has done his homework. He understands the background. He might have already pre-discussed with other individuals in the room… already have engaged some external experts or people within his organization." Lisa continues, "… the meetings are well organized… he sets up the agenda… does a very good introduction… [and] models a sense of excellence and thoroughness and rigor."

Jackie, a subordinate, observes that Steve's pre-meeting preparation enables him to bring people along and achieve buy-in during meetings. "One of his best skills," Jackie comments, is his, "way of parsing down something very complex into something very simple and understandable and palatable… He could take a complex regulatory strategy and describe it very succinctly." She notes that in a friendly, thoughtful way, he leads teams through the decision points and why he recommends decisions at those points to reach the best strategy. To get to this point, Jackie says that Steve proactively works through a network of colleagues between meetings. And he has taught her to do the same.

"So what happens," Jackie notes, "is, behind the scenes, we push a lot. We ask a lot of questions. We ask for certain types of analyses to be done."

All informants describe that Steve constantly prepares for meetings offline, such as dealing with challenges and conflicts beforehand, or afterward, to try to avoid unpleasant public eruptions. Steve provides the examples of a couple of disagreements he had with a medical reviewer. Steve explains, "Where possible, I try to find ways to meet with that person outside of the larger team setting to make sure I understand where they're coming from and what their thoughts are on things. And I try to share what I think and why I feel the way I do." Then, Steve tries to resolve the disagreement in a way that's not in the team setting. Combining offline preparation with an effective style in cross-functional team meetings enables Steve to be highly collaborative and work with others toward strategic critical thinking.

Steve and his interviewed colleagues provided many examples of his skills in collaborating and critical thinking with colleagues. Respondents told stories, for example, about Steve's work with many teams to get a recalled product back to market. SF Therapeutics had to recall its biologic for Rheumatoid Arthritis because there were some adverse incidents where patients got serious, possibly life-threatening, infections. He worked with one team that, he says, "worked closely with the FDA to bring that product back to the market." He also worked with teams to evaluate how to mitigate the risk of infection. Steve's collaborations resulted in a highly innovative strategy of creating a device (a blood test) for predicting which patients were at risk of infection. Further, Steve proved central in working with people to come up with a very strategic, reduced time

frame, regulatory approach for getting the innovative device approved along with the re-launched drug.

Steve and his teams helped the organization learn because, as a biotech company, it had very little experience with medical devices. Lisa observes, "… he sought out all the experts on this…did a ton of research together with his team, and worked hard to scope out an approach." The regulatory pathway for getting the device approved was, according to Lisa, "…a very murky and evolving area within regulation. It's not clearly written out." Lisa notes that Steve was very innovative and did a tremendous job culling information from across the company and outside it. She says he worked with others to come up with a successful approach, and to educate people in the company, "…on how we have to approach getting this device approved." Steve's ability to collaborate and think critically with others is helped by his abilities to self-manage and relate well to others.

Relates Effectively to Self and Others

Steve's direct report, Jackie, describes Steve's strengths in relating. "Steve is a really good guy and everybody knows that," she begins. Jackie continues, "He's the kind of guy that would come over to your house and help you chop wood… He exudes that. You get along well with Steve." Echoing others, Jackie notes that Steve expresses his opinions and is respected for that, but also listens and interacts with others expertly. For example, Jackie and others comment that Steve is always calm. Jackie adds, "When there is emotion or conflict, or people are angry, he has a really good way of diffusing that." Jackie says that Steve will typically say something like, "I hear you. I can hear where you're coming from. And, in fact I reacted that way myself when I first heard that." Then,

he'll often take that emotion on himself and say, “Yep, I was there with you.” Next, he is often able to move others beyond the difficult emotion or conflict, as in taking the approach of, “…I'm past that now so I'm going to get you past that,” Jackie explains. Steve connects with people and then helps them move on.

Danielle, another subordinate, also observes that Steve has a good style of diffusing conflict by taking the passion out of a situation. He brings things to a logical level, tries to hear things through, and resolve issues. According to Danielle, Steve might say, “Well let's just stop and think for a minute.” And then he walks people back through an issue step-by-step to guide the issue to resolution. She remarks on Steve’s self-control, adding that, “On a personal level, in his office, he might be screaming, ‘that's not at all what I would do!’ But, in a meeting situation he's very, very good at trying to find a way to resolve the situation.”

Steve notes that he usually tries to avoid managing conflict publicly, in meetings. Instead, he tries to resolve issues either before or after meetings. Steve explains, “…because sometimes politics come into team settings, as well … sometimes people feel they have to defend their position on things. So sometimes the best thing is to try to take it out of that setting and see how it's going to work.” Steve tells of one time he didn’t do that and he had a disagreement with someone that was more public than it should have been. After the meeting, he and the other person got together, understood where each other were coming from. As a result, Steve understood the whys of the other person’s view of how to design a particular clinical trial. While he did not necessarily agree with it, his new understanding resolved the conflict. And, it turned out that the FDA accepted the other person’s and not Steve’s view of that particular issue.

Danielle, like Jackie and others, remark that Steve is a good listener. “We can have an open dialogue,” Danielle reports. “He may not know what to do immediately, but I do feel I can talk to him and he will listen and try to act,” she says. Lisa, a superior, explains that, in meetings, Steve draws people out. Lisa illustrates saying, he’ll give a preamble and then asks, “Lisa, what do you think? Mike, what do you think? Larry what do you think?” Then he reflects back what he heard. “He’s a quick study in that,” observes Lisa, “he’s good at repeating what he’s heard in a synthesized kind of way.” Lisa says, admiringly, that Steve is very deft. She explains that, “The temperature doesn't have to rise. He'll manage his own feelings very well. He's a logical person. He doesn't get ruffled under the collar. He's very at ease. He's naturally very witty.” And, she adds that he’s very comfortable talking with very senior people, even though he’s a middle manager.

Steve also relates well to his subordinates as an effective mentor. Suzy comments that Steve spends a tremendous amount of time with Jackie, for example, talking through strategy. According to Suzy, this mentorship has enabled Jackie, over time to begin to think more like Steve, with a strong emphasis on perspective taking of different scientific, medical, and other functions within the company. Jackie relates that when she first reported to Steve, he engaged at a very detailed level in what she did. He remains very engaged, but established trust in her and figured out the working relationship. Steve is generous with praise and positive reinforcement. Jackie says that she and Steve have deepened their mutual trust and now share, “a synchrony in terms of our thought process and how we come to conclusions.” Jackie observes that the sense of trust extends throughout Steve’s, “strong network of relationships, built on respect and mutual trust.”

In building strong relationships, Steve emphasizes the importance of face-to-face interactions and making an effort to understand others. He encourages his subordinates to avoid using e-mail and the phone and, instead to go speak in-person with other people. He counsels his staff to get to know the people and teams with whom they work. “It goes a long way to developing a shared understanding of what motivates one another, a shared understanding of how each person works,” he says. Steve builds on such understandings in achieving results.

Achieves Excellent Results

Steve combines his relating ability with the complex mindset of multi-disciplinary work -- which combines complex scientific, interpersonal, and organizational sensemaking – to achieve excellent regulatory strategies along with cross-functional teams.

One example, mentioned above, is that Steve worked with various teams to re-launch a Rheumatoid Arthritis drug that had been pulled from the market due to its potential, in rare cases, to cause an infection. In this case, as Steve put it, “I served as a leader throughout the process, but my role as a leader varied depending on what stage of the process we were at.” Steve described his role in the multi-year story of re-launching the drug in three phases. In the early stages, he describes himself primarily as a listener, in the second stages he saw himself as a shaper of the regulatory strategy, and in the final stages he conceived of himself as a guide, shepherding the strategy to fruition.

As a listener in the early stages, Steve listened to and learned from a team of very senior people in the company who represented a variety of R&D functions. As Steve listened, he generated options in his own mind about what kind of filing strategies might

be palatable to the FDA. He inquired into the views of neurologists and immunologists who were medical specialists in the disease and who understood the potential for an infection to arise in response to the drug. He listened to Safety and Biostatistics experts who knew the data on clinical trials and the adverse event (the infection) backwards and forwards. He absorbed opinions of pharmacologists, toxicologists, and other scientists. He also watched how the senior people with whom he worked navigated the issues, the organization, and their networks within the organization and beyond. Steve reports that he learned a great deal from these observations, which helped him shape an innovative regulatory strategy in his own mind.

As a shaper, Lisa describes that Steve continued to work with various teams to come up with the innovative strategy of re-launching the drug with a device to conduct a blood test (an anti-body assay for the infection) to determine which patients were at risk for infection. Drawing on what he learned with the doctors and scientists in the early phases, Steve worked with them to shape this new strategy. Steve explains that he worked to shape the individual ideas from various team members so that they fit together as a coherent synthesized idea. "Individually, people represent their ideas," Steve explains, "… and collectively, I was trying to say, okay, so what is it collectively we're trying to say as a team… assimilating [a collection of ideas] into a complete thought. And we did that for a lot of different things."

In the final stages, as a guide, Steve worked with the multi-disciplinary teams to, as he put it, "…take this concept of what we've created and break it down to the way that the [regulatory] agency can understand it and also that they feel as though it's the right thing to do." Although the idea for re-launching a drug consisted of marketing it with

both a blood-test device to determine which patients were at risk of infection and a biologic, Steve guided the team to avoid trying to get the test approved separately as a device. As Lisa says, "… we called it a drug and a device that they have to use simultaneously." She explains that this helped create one regulatory submission, rather than two. In effect the regulators, "… have to review not only all your clinical data around this test, but also the test itself." This strategy, guided by Steve, had not been tried before, was carefully arrived at, and proved successful with the regulators.

Steve played an important role with the FDA in having this strategy accepted. In effect, at an FDA meeting, he guided the regulators to approve the strategy. Through his research and preparation, Steve understood that the regulators had the latitude, according to the regulations to approve the drug and blood test together. He also understood that, since it had not been done before, he would have to persist in getting their explicit approval. Lisa recalls that in response to a vague indication from the FDA about whether SF Therapeutics could market the test with the drug, Steve challenged them 3 or 4 times until they answered clearly:

> But isn't it true [Steve argued to the FDA panel] that we are allowed to put this device on the market as a lab developed test? ... After all, physicians tell us they want access to the test. It may take a long time to get it to labeling. And we feel there's an urgency to make it available. Isn't it true that we would be allowed to do that?
>
> And [the FDA panel members] were hemming and hawing and, 'maybe not, maybe not.'
>
> And [Steve] must have asked the same question in three different ways.
>
> Finally, they said, 'Well, you're right. You're absolutely right. You can put it out there. And, of course, we can use enforcement discretion if you make any claims that are not on label, we will do whatever we are allowed to do on that.'

Decentering and Dialing Back

For all of Steve's highly effective leadership behavior described by interviewees, his two superiors, Lisa and Suzy, acknowledged he could be even more effective by decentering from his personal contributions and dialing them back in order to make more room for subordinates to shine. Lisa reports that Steve had people, like Jackie, on his team who are flourishing and doing extremely well. In her view, "…as his people are maturing, he has to dial back more and give them more mentorship behind the scenes and be less present in the meetings." Lisa continues, "and, if he is present in the meetings, speak less, and give them coaching prior to and after the meeting, rather than in the meeting."

Steve's subordinates concur. Both Jackie and Danielle say that, when Steve is in a meeting with them, he remains a passionate contributor and that makes it harder for them to have influence. Jackie reports that it can be de-motivating, "…if he's constantly filling in, or, if he's talking so much that the questions now start going to him instead of me and I'm the person who's supposed to be there."

Suzy says that Steve focuses more and more on building subordinates and the team under him, but he is only 75% of the way there in terms of de-centering enough from his own contributions. Suzy notes, as an example, that, for the last offsite she planned for the Regulatory department, "…that's the last thing Steve wants to do." Steve doesn't want to be out of the office because of all the work he has on his desk. After the offsite, Suzy says that Steve acknowledged that it had value in terms of professional development and building collaboration within the department. But, a constructive

orientation to building capacity within the Regulatory department is still somewhat lacking in Steve's vision of leadership.

Steve's LE and Blind Spots Interpreted through MC, EI, and the Hot and Cool Systems

Steve is excellent on teams, relates effectively to self and others, and achieves excellent results. His sole blind spot is Distance and Decenter.

Interviewees describe Steve as a highly effective leader. He mentors his staff fruitfully, is influential on cross-functional teams, and influential with others across his networks (senior leaders, partners, and regulators). Informants praise Steve's listening ability, strategic thinking, cultivation of relationships, proactive conflict resolution, and powers of persuasion and influence. Steve makes a big and positive impact on regulatory filings. He achieves highly effective leadership, from the point of view of EI and MC, by combining strong relating ability with the ability to see, reflect upon, and strategize about technical, interpersonal, and organizational complexities. He leads performance with élan and versatility in every context he encounters. If Steve developed greater MC, perhaps he would gain the ability mentally represent leadership differently to himself.

Interviewees report that Steve's ability in relating to others and in managing his own emotions serve as important glue in his effective leadership behaviors.

Interviewees' stories demonstrate that Steve shows strong self-control and ability to see emotional complexity (EI) in organizational life. This is apparent in his well-honed skills in listening, remaining calm, and advocating his own viewpoints. For example, respondents describe Steve as open to others, a "good guy" and someone who emphasizes face-to-face interactions rather than communicating by phone or e-mail. Respondents

also report that Steve is an excellent listener. He pays attention to what people say and reflects it back to them, often expressing empathy for their viewpoints and intelligently synthesizing their thoughts rather than mechanically repeating them. He remains calm in his interactions with others and, informants say, is skilled in diffusing conflict in conversations. Steve also expresses himself and his opinions articulately. He acknowledges others' views and moves on from there to share his own. In general, Steve shows a lot of skill in many aspects of relating to others. He is "deft," as Lisa reports in relating to others.

These strengths in relating may be built upon the complexity of Steve's MC. Steve seems to see and reflect upon many complexities in interpersonal and organizational realms consistent with level just below Kegan's Self-Transforming Mind. At this level of MC an individual has fully consolidated the agenda-driving and independent systems view of the Self-Authoring Mind and approaches, but in some ways falls short of, the multi-frame, problem-finding, interdependent mindset (Kegan & Lahey, 2009) of the Self-Transforming. Steve is able to co-ordinate more than two fully articulated systems views. He seems to hold in tension contradictory and competing demands made by the scientific colleagues of many disciplines and medical colleagues with various specialties with whom he works in the quest to formulate and execute successful regulatory strategies.

Consider the example of Steve's work with various teams in re-launching the rheumatoid arthritis drug. As Steve tells it, he structured his interactions into what he calls a listening phase, a shaping phase and a guiding phase. In the listening phase, Steve's self-control ability might have helped him remain calm while listening and truly

concentrate on what they were saying. Steve reports that he suspended his own views enough to truly reflect upon and be influenced by medical and technical experts. Steve also kept in mind political considerations that kept him from trying to shape things too soon, before he had done what he could to prepare the ground through listening and showing empathy for others' concerns. Steve engaged in his typical practice of gaining alignment with others before and after meetings in order to avoid public conflict during meetings.

In the shaping phase, Steve's EI-skill of detecting the complexities of others' emotions and MC-skill of holding multiple, often paradoxical or conflicting scientific and medical views plausibly supported his success in co-constructing a regulatory strategy with colleagues while succeeding in advancing his preferred approach. Steve convinced his colleagues, many of whom were more senior than him, to file the blood-test device (for screening out patients susceptible to infection from the rheumatoid arthritis drug) along with the drug, rather than making a separate filing. This was an aggressive strategy that would, if successful (which it was), save great time and cost. Steve influenced others to adopt his preferred approach by listening actively to others' perspectives and adaptively synthesizing them with his own views into a new and more complex unity than his original approach.

In the guiding phase, Steve describes his approach as, "Okay, now that I've understood everything and we've shaped these ideas, this is how I want to bring it forward." Arguably seeing and accounting for others worldviews and emotions (such as LiChong's proclivity for outbursts when feeling impinged upon) empowered Steve in his quest to help shape the endpoints: overall design of new clinical trials; the technical

analyses of the data; and the writing of regulatory filings. It seems likely that, without continued focus on others' perspectives, Steve would have struggled to guide the strategy. His ability to continue to take what respondents describe as a calm, unruffled-by-conflict, reasoned approach suggests that he had much success in keeping his cool reflective system engaged and his hot system at bay. It's plausible that, by seeing the process as being made up of so many moving parts, a function of high MC, Steve was not surprised by much and therefore didn't tend to experience bumps in the road as great stressors that might trigger his hot system and diminish the engagement of the cool system.

It seems that Steve's drive to contribute to the fullest can, at times, overshadow his direct reports. In meetings at which his direct reports are supposed to represent the regulatory function, Steve sometimes cannot resist the temptation to jump in and, when he begins to hold the room's attention, as he does so well, become the center of things. This seems to represent a rare break in Steve's admirable self-control. It seems reasonable to say that, when Steve jumps in, his reflective attempts to give his subordinates valuable experiences on drug program teams begin to vanish. In this respect, Steve's MC retains traces of Kegan's Self-Authoring Mind which drives its own agenda but may not reflect on the limits of the same. His MC can play a cooling role here. With a more complex view of his role – as a leader of his people as well as a driver of successful regulatory strategies—it is plausible that his excitement about jumping in during meetings will be matched with excitement about developing his people.

Table 10-1. Scored Leadership Effectiveness Measure-LiChong, Andrea, Neil, Laura, Jennifer, and Steve (Group 1 – High MC, Moderate EI, †Group 2 – Moderately high MC, Moderate EI)

Item		*LiChong*†	*Andrea*†	***Neil****	*Laura*	*Jennifer*†	***Steve****
	Sensemaking *(average)*	*3.7*	*3.7*	*3.7*	*3.3*	*3.7*	*5.0*
1.	*Team*	4	3	4	3	5	5
2.	*Cross-Functional*	3	4	3	3	3	5
3.	*Organization*	4	4	4	3	3	5
	Relating *(average)*	*3.6*	*3.7*	*3.4*	*3.4*	*3.6*	*4.8*
	Team	4	3.7	3.3	4	3	4.3
	Cross-Functional	3.3	3.7	3.3	3.3	3	5
	Organization	3.3	3.7	3.7	3	3	5
	Inquiry (average)	3.3	4.0	3.3	3.7	4.0	4.7
4.	*Team*	4	4	3	4	4	4
5.	*Cross-Functional*	3	4	3	4	4	5
6.	*Organization*	3	4	4	3	4	5
	Advocacy (average)	4.0	3.0	4	3.3	3.0	5.0
7.	*Team*	4	3	4	4	3	5
8.	*Cross-Functional*	4	3	4	3	3	5
9.	*Organization*	4	3	4	3	3	5
	Connecting (average)	3.3	4.0	3	3.3	3.7	4.7
10.	*Team*	4	4	3	4	5	4
11.	*Cross-Functional*	3	4	3	3	3	5
12.	*Organization*	3	4	3	3	3	5
	Visioning *(average)*	*4.7*	*3.7*	*4.3*	*3.0*	*4.7*	*5.0*
13.	*Team*	5	4	5	3	4	5
14.	*Cross-Functional*	4	3	4	3	5	5
15.	*Organization*	5	4	4	3	5	5
	Inventing *(average)*	*4.7*	*4.0*	*4.7*	*3.7*	*4.3*	4.7
16.	*Team*	5	4	5	5	5	4
17.	*Cross-Functional*	4	4	4	3	4	5
18.	*Organization*	5	4	5	3	4	5
	Change Signature *(average)*	*3.7*	*4.0*	*4.0*	*3.0*	*3.7*	4.7
19.	*Team*	4	4	4	4	5	4
20.	*Cross-Functional*	3	4	3	2	3	5
21.	*Organization*	4	4	5	3	3	5
	Team Performance *(average)*	*4.3*	*4.0*	*4.0*	*3.3*	*3.7*	*5.0*
22.	*Team*	5	4	4	4	5	5
23.	*Cross-Functional*	4	4	4	3	3	5
24.	*Organization*	4	4	4	3	3	5
	LDMA	**11:2**	**11:3**	**11:3**	**None**	**11:2**	**11:3**
	MSCEIT	**73**	**95**	**95**	**103**	**88**	**95**
	(Overall Average) **LE**	**4.09**	**3.83**	**4.02**	**3.3**	**3.93**	**4.85**
	LE Raw Score	24.6	23	24.1	19.8	23.6	29.1

Part III

Seven Leadership Blind Spots: Results, Educational Implications and Directions for Future Research

11

Results

As described in Chapters 1 and 4, the sample I ended up with did not permit me to carry out the study design as described in Chapter 3. I had hoped to have a sample that would permit me to compare one group of leaders with MC scores at Kegan's Self-Transforming Mind with another group at Kegan's Self-Authoring Mind. I reasoned that the complexity and multidisciplinary nature of biotech demanded a leader to use MC at the level of Kegan's Self-Transforming mind. If so, those with Self-Authoring mind-sets, who might be less than fully aware of the limitations of their own agendas and viewpoints might be "in over their heads" (Kegan, 1994). They may have difficulty leading reflectively. In contrast, leaders with MC scores correlated with the complexity of Kegan's Self-Transforming Mind would, in a perfect world, have MC adaptive to the challenges presented by the multidisciplinary, uncertain, and complex context of biotech R&D. As reported earlier, the sample I ended up with did not contain two comparison groups that would have enabled me to make the planned qualitative comparison of the two groups' LE, based on their quantitative MC and EI scores. Clearly, I needed to take a different approach.

My revised approach, was to explore the cases on a case-by-case basis rather than conducting a comparison between two groups of cases. This kind of qualitative case-study approach can yield interesting cross-case patterns and insights (Miles & Huberman, 1994) that are plausible and potentially educative. This is an explanation building approach (Yin, 2003). It can raise questions or generate hypotheses (Glaser & Strauss,

2007) about the contributions of MC and EI to LE, but it cannot answer those questions. Such questions must be answered in future research.

Caveats and Qualifications

I do not wish to overstate the following caveats, but do want to help calibrate the reader's expectations. As reported in Chapter 4 and mentioned throughout the case studies, in looking qualitatively at MC, EI, and LE within and across the cases, I noticed the 7 Blind Spots, patterns of leadership behavior that reduced LE. However, I am not yet in a position to make strong claims about the 7 Blind Spots, nor about their relationship to MC, EI, LE and the hot and cool systems. I am not, before conducting further research, able to tease out whether it is MC or EI or the interaction of the two that leads to the different patterns I observed. I am not able to establish empirically that these Blind Spots not only occur but also are, in fact due to MC and/or EI and that they are mediated by the hot and cool systems.

To state it as cautiously as possible the results do not answer my research question, presented in Chapter 1. Due to the nature of my sample, I adopted an explanation building approach (Yin, 2003) to generate grounded-theory hypotheses (Glaser & Strauss, 2007) about the contributions of MC and EI to LE. My readers have told me that the 7 Blind Spots are interesting and plausible, but any connections I make between them and MC and EI and the further connections to the hot system and cool system are interpretive. They are hypotheses to be explored in future research.

Caveats and qualifications stated, what sort of evidence is provided by the cases?

Taking Stock of the Evidence

The cases present a rich body of triangulated information about the case-study subjects. They reveal leadership behavior that is characteristic for each of the leaders profiled. Further, these characteristic patterns of behavior can be understood as plausibly showing greater or lesser aspects of MC and/or EI as they are connected to LE. The behavioral patterns vary, in different ways for the different leaders, between different contexts, including their own team, cross-functional teams, and the greater organization. We see evidence, for example, of thinking and leadership behavior on cross-functional teams that is more or less complex, as in the difference between Steve's and LiChong's behavior on cross-functional teams. And, we see the difference that reportedly makes to LE. Staying in the multidisciplinary context, we see self-control that is stronger or weaker, as in Andrea's ability to keep relationships going smoothly, come what may, versus Neil's volatility. And, we are told by subjects of how much more effectively Andrea's cross-functional team meetings usually proceed than Neil's sometimes do.

A skeptic might ask any number of questions. One question that begs to be asked is: wasn't it inevitable that I would find the patterns of behavior that I did? The answer to this is no. The data easily could have not revealed these patterns and could have instead revealed no patterns or quite different patterns. The case-study subjects could have been much more uniform on LE, or in the contexts in which they exhibited that LE and those in which they did not. On the other hand, the differences were characterized very readily in terms of the 7 Blind Spots and differentiated between different contexts -- team, cross-functional teams, and organization.

An Interpretive Frame

I present the following broad interpretive framework as a plausible reading of the data in the cases.

Conditional Leadership Effectiveness

The complexities each leader sees or does not see and the emotional aspects of leadership that he or she handles adroitly or fumbles are not the same. What *is* consistent across the 6 cases is that each person's LE is conditional upon context (team, cross-functional team, or organization) and domain (technical, interpersonal, organizational).

For the most part, the leaders are reflective, able to coolly think about leadership challenges as if from a distance and to choose their leadership behavior. However, in certain contexts—different ones for each leader—they tend to take an immersed perspective on leadership challenges. Rather than engaging in the effortful thinking required to plan and execute effective leadership behavior, they **react** hotly or **withdraw** unreflectively in ways that diminish LE. But, MC and EI seem to have the potential to curb LE-decreasing reactions and withdrawals.

How MC and EI Might Operate Jointly for LE

Higher MC tends to help leaders to remain cool and reflective and therefore able to choose effective leadership behavior. Increased MC promotes seeing a situation as having more parts and enables leaders to take a more self-distanced and long-term view. With High MC, one can distance oneself from and reappraise hot parts of a situation and focus on its cooler aspects. This, in turn, can boost the focus of one's self-control (EI) on the more limited aspects of a situation that remain hot. It seemed to work the other way, as well. Strong EI skills seemed to help leaders remain cool in response to stress and it

cleared the way for them to engage their MC. With the cool system up and running, leaders could use their MC to take a complex, self-distanced, and long-term view of a leadership challenge.

7 Patterns of Behavior with the Footprints of EI and MC

I found 7 behavioral patterns when leaders fail to preserve their self-control and lose the ability to use their reflective abilities. I call these 7 leadership blind spots because they are those situations in which the leader is immersed and cannot see how to lead more effectively. Each subject exhibits at least one blind spot, with, as alluded to above, significant variability in the conditions under which each struggles. Using the acronym BLINDSPOT as a mnemonic device, the patterns of behavior in which LE tends to be diminished are:

Being Forceful
Lacking Visibility
Insecure Authority
Need to be Political
Distance and Decenter
Stop Enabling
Problems **O**n **T**eams

Blind spots seemed potentially associated with MC and EI as mediated by two quite different but inextricably linked neural and cognitive systems: a hot limbic system and a cool cognitive system. The hot limbic system is rooted in the ancient fight-or-flight emotional brain (McClure et al., 2004) and the cool, reflective cognitive system is associated with neural activity in the prefrontal cortex (McClure et al., 2004).

The blind spots seemed to occur when leaders were hot and reactive, anxious or withdrawn. When leaders remained cool and reflective, they did not tend to have difficulties with the blind spots.

What do these labels mean? *Being too Forceful* refers to a tendency for some leaders to attempt to influence and lead others with heavy-handed or harsh use of authority, power, or strength and to have insufficient respect for others' views. *Lacking visibility* refers to the difficulty some leaders have drawing attention to themselves, the people on their team, and their accomplishments which results in missed opportunities to cultivate relationships, share know-how with others, and participate in projects across the organization. *Insecure Authority* relates to some leaders' discomfort with assuming authority, which can lead to difficulties making use of one's ability and power to influence the way others think, feel, and behave. *Need to be Political* is connected to the fact that some leaders fail to navigate political factors in the organization, such as the complex web of relations between stakeholders that impact their ability to have influence and achieve buy-in. *Distance and Decenter* refers to the need for leaders to become less centered on their own contributions and more focused on stepping back out of the limelight and creating the conditions which encourage others to develop, lead, and get most of the credit. *Stop Enabling* refers to a tendency for some leaders to give in to strong-willed others or to enable difficult behavior by others, such as poor performance. And, finally, *Problems on Teams* is related to the challenges some leaders experience in collaborating with others, leading, and having influence on multidisciplinary teams.

Each of the case-study subjects exhibited at least one of the 7 blind spots as shown in Table 11-1. I will explain each of the seven blind spots by using illustrations

Table 11-1
7 Leadership Blind Spots

Blind spot	*Description*	*Leader*
***B**eing Forceful*	Attempting to influence and lead others with heavy-handed or harsh use of authority, power, or strength and insufficient respect for others' views.	LiChong Neil
***L**acking Visibility*	Missed opportunities for a leader to show others in the organization the accomplishments, capabilities, and know-how of her group in order to cultivate relationships, and create opportunities for collaborations and learning.	Jennifer
***I**nsecure Authority*	A leader's discomfort with assuming authority, which can lead to difficulties making use of one's ability and power to influence the way others think, feel, and behave.	Neil
***N**eed to be Political*	When a leader fails to recognize and intentionally participate in the political game--the complex of relations, activities, and behaviors that comprise the political dimensions of social groups.	Neil, Laura
***D**istance and Decenter*	The need for leaders to become less centered on their own contributions and more focused on stepping back out of the limelight and creating the conditions that encourage others to develop, lead, and get most of the credit. [27]	Steve LiChong Neil
***S**top Enabling*[28]	A tendency for some leaders to give in to strong-willed others or to enable difficult behavior by others, such as poor performance.	Andrea Laura
***P**roblems **O**n **T**eams*	Challenges that some leaders experience in collaborating with others, leading, and having influence on multidisciplinary teams.	LiChong, Neil, Laura, Jennifer

[27] This description comes from Howard Gardner (2011, p. 158).
[28] The blind spot names *too forceful* and *too enabling* are inspired by the work of Kaplan and Kaiser (2001).

from the case studies. As above, each blind spot represents a failure of a leader to use MC, or EI, or both in order to maintain LE.

What follows is a description of each of the blind spots illustrated with examples from the case studies.

Being Forceful

The blind spot labeled *being forceful* arose from interviews about two of the case-study subjects, LiChong and Neil, who undermined their own effectiveness when arguing too forcefully for their views. Leadership scholars Kaplan and Kaiser point out that there is a long history in the leadership literature of making distinctions between leaders that are too controlling, task oriented, and hard on people as in autocratic leaders and leaders who are more trusting, relationship oriented, and considerate of people, as in more democratic ones (Kaplan & Kaiser, 2001). In the multidisciplinary environment of biotech (and many other knowledge work sectors in the 21st Century), being too forceful can limit a leader's ability to get important leadership jobs done.

Lacking Visibility

The blind spot entitled *Lacking Visibility* emerged from the case of Jennifer. She is a leader who does not cultivate enough visibility for the accomplishments and abilities of her own team. This limits her effectiveness as a leader within the organization. Her boss Hector explains that if Jennifer communicated more and communicated more effectively beyond the boundaries of her team it would help the rest of the organization. Jennifer leads a support function, in clinical operations, that helps manage the clinical trials process. Therefore, more feedback from her to the rest of the R&D organization

might help with the design, execution, and follow-up of clinical trials. As well, her boss Hector asserts that by sharing more with others, Jennifer's own views about what can be accomplished might be broadened. Hector and Jennifer's boss Sarah, both suggest that by cultivating greater visibility in the organization Jennifer and her department would get more credit, which could have positive results for Jennifer's leadership in the wider organization. Getting more credit would be a confidence-booster to Jennifer and her team. Greater visibility for Jennifer's team might also make others more likely to interact with and be influenced by it.

One example of Jennifer not cultivating visibility for her team is around her success in off-shoring some of her department's activities to India. Jennifer did it in a way that she retained her people in San Francisco, giving them new roles, and contracted with a number of suppliers (Contract Research Organizations) in India to be able to scale up to meet spikes in demand much more quickly than her existing team could do. This was a difficult and ultimately successful effort, yet Jennifer did not share her hard-won knowledge with other departments widely. Respondents suggest that other departments could have benefitted from the experience of Jennifer and her team.

Insecure Authority

The blind spot labeled *Insecure Authority* came from Neil, a leader who exhibited difficulty exercising authority comfortably. This can be contrasted with Steve, who accepted and used his authority to great effect.

According to interviews, Neil alternated between trying to prove to subordinates that he was *not* an authority figure and behaving in an authoritarian way. Neil and his

subordinates explain that Neil goes out of his way to show he is on their level. When he works with less experienced employees he wants them to feel that he is right there beside them, seeing problems as they do. Neil tries to cultivate an atmosphere of everyone in his group being at the same level with many breakfast meetings and dinners. As Neil puts it, he wants subordinates to think, "…look, he's not afraid to roll up his sleeves and talk about these things. And he's a real human being. He's not some senior level guy who's just interested in his career and is going to step on anyone to get ahead." But, in other comments, Neil talks admiringly about senior executives that command a sense of respect and authority. He confesses that he would like to command the same authority. Further, Neil can behave in a very authoritarian, almost militaristic, way. Neil can get frustrated and become authoritarian when drug-program-team members do not find his input persuasive. His boss Jerry describes Neil's attitude at these times as, "lead, follow, or get out of the way!" At these times, Neil demands a lot of his people or others on cross-functional teams and expects them to bend to his expert power and authority.

Neil's reluctance to use authority more comfortably contrasts with Steve who has a great deal of influence without being authoritarian. Steve does not try to convince his subordinates that they are on a level playing field with him. He provides them with a great deal of support, but does not try to impress upon them that he does not have authority in the relationship. Subordinates describe working hard to do a good job for Steve, but they never describe him as being heavy-handed in his use of authority. They say that he expects a lot from them and that he will only authorize them to take on responsibilities that they have shown themselves capable of taking on. But they do not describe Steve as being authoritarian in getting them to perform for him.

Steve also has influence on an array of cross-functional drug program teams. (As a leader in Regulatory Affairs Steve works with many teams.) Steve's authority is earned by virtue of the credibility and trust he has cultivated and his skill as a leader. Steve has built his authority over time through listening to others, taking others' perspectives, being extremely well prepared for meetings, collaborating well with others, and by demonstrating his strategic critical thinking. Neil is also respected for his expertise, but where Steve focuses on listening to others and collaborating, Neil's energy, at times, goes into advocating for his strong technical opinions.

On the question of relating to others and authority, Neil might exercise authority more effectively if he could control outbursts. As well, his discomfort with his own authority seems to result in his occasional efforts to prove to his subordinates that he does not regard himself as a remote and callous senior leader. In contrast, respondents describe Steve as being calm in a way that contributes to his influence. Steve is neither prone to get frustrated in meetings with others nor anxious to prove to his direct reports that he is an equal. By remaining calm in meetings, Steve does not undermine his own authority as Neil does when he shows his frustration. Steve also seems to be at peace with his level of authority.

Need to be Political

The blind spot *Need to be Political* arose from the cases of Laura and Neil. Laura and Neil seemed to regard organizational politics as irrelevant compared to the substance of their scientific contributions.

Laura's boss Lisa summarized Laura's view when she explained:

> That's a broadly held belief, by the way, amongst scientific people. You know, people will believe me because I'm a credible individual and because of the quality of my work … maybe not recognizing that there's also another part … your communication skills and networking and relationship building. There's also a bias in R&D that that's sort of political maneuvering and we don't do that kind of stuff.

As Lisa intimates, communication skills, networking, and relationship building are an important part of promoting one's scientific views within an R&D organization. In other words, to have influence in an organization a scientific leader needs to be politic, which Merriam-Webster dictionary defines as, "sagacious in promoting a policy," and, "shrewdly tactful." Writer Gore Vidal said it well when explaining why he decided he couldn't be both a writer and a politician. "The novelist must tell the truth, just as the real politician must never give the game away" (Vidal, 1999). Scientific leaders might tend to see themselves as akin to novelists, as only having to worry about telling the scientific truth. However, they may make more progress in the organization with their own scientific and career goals by first working to understand and help satisfy others' perspectives, interests, and feelings.

Laura showed a dramatic instance of not being political enough when making a presentation about a Phase III trial of a new drug to the company's board of directors. Although things had been going very well with the trial, Laura made a small safety concern – really a tangential comment about another drug in a similar chemical class – seem like a big concern by being impolitic in raising the point and unprepared to answer questions about it. In fumbling responses to board members' pointed questions, Laura caused temporary alarm that there was a big concern with the clinical trial results when there was not.

Laura had not realized the political importance of the presentation. She failed to prepare thoroughly for difficult questions from board members during the meeting and failed to speak with mindfulness of the larger context at the meeting. According to respondents, the reason that Laura did not prepare adequately, by rehearsing and pressure testing her presentation with her boss, for example, is that she was so busy working on other matters of scientific substance. In some ways, it is typical of Laura to be swamped by the scientific details of her work, with scant attention to organizational matters. After the blunder of this episode, Laura had a relationship to repair with the new team leader of the drug program. But, Laura's boss Lisa comments that rather than keeping the team leader abreast of activities with regular updates, Laura's approach was to, "… just do the work and hope it gets noticed."

Neil is another leader who could be more effective by being more political. Neil's subordinate Vasil summarizes Neil's political behavior as follows. "I've seen him be political…I'm not sure he's as political as he should be, which for me is a good quality." Vasil confirms the bias against political behavior, which Lisa mentioned in the quote above. Perhaps more importantly, Vasil notes that Neil may not go far enough with his political behavior. Neil seems aware of this himself. For one thing, he expresses admiration for the ability of his boss Jerry to be discreet. Although he admires Jerry's behavior, he said that it might be too corporate for him to follow suit. This seems an unusual perspective since Neil is, in fact, in a corporate environment. Yet, Neil also speaks longingly, perhaps without knowing it, about developing political skills. He talks admiringly of Chris, the new head of R&D who can command respect yet be non-threatening. "There's no question that he's an executive in R&D," Neil explains, "and…

very few people would feel threatened by him. He's balanced that…and that's where I want to go," Neil adds. However, Neil does not seem to be cognizant that Chris' ability to command authority without seeming threatening may be the result of intentional effort. Chris likely works in an astutely political way to cultivate his influence and authority without, "giving the game away." Unlike Chris, or his boss Jerry, Neil only goes so far in being political. It seems he needs to go further.

Neil does make substantial efforts to network in the organization. His team can provide valuable pharmacokinetic services to every drug development team in the company and Neil wants to make sure people are aware of this. Consequently, Neil cultivates relationships throughout the organization so that others are aware of what his team can do for them. He is compelling and effective at building support for his team's work. But, then, Neil can be very impolitic in cross-functional meetings. Graham, one of Neil's superiors says that Neil undermines his own team in cross-functional team meetings by grilling them with pharmacological questions they are not prepared to answer. Graham notes that Neil fails to get alignment with his team before cross-functional team meetings so as not to be disruptive. It's ironic that Neil cultivates support for his team throughout the organization, but then undermines them during drug program team meetings. Neil may feel that he is demonstrating his technical value when he publicly questions his subordinates. However, Graham says that others find this counter-productive and say that it does not reflect well on Neil and his team.

Distance and Decenter

Steve, LiChong, and Neil illustrate the blind spot named *need to decenter*. Steve is the most effective leader among the case-study subjects. He also has the highest ratings for complexity. He does an excellent job employing complex sensemaking to step back from his own self-authored agenda; see it as part of a larger, more complex organizational and FDA agenda; hold multiple, sometimes opposing, agendas in tension with each other; and synthesize these multiple agendas into a provisional plan for a regulatory filing. However, as I said to prime interviewees to reveal the primary subjects' limits, every leader has room for improvement. Steve's example demonstrates how a highly effective leader might become even more effective by developing:

> … Greater capacity to decenter: to assume a distance from her own agenda, to understand and help others achieve their goals, to create situations in which others realize their potentials, and to lead effectively by stepping into the background and allowing--indeed encouraging--others to assume greater independence and to receive most of the credit. (Gardner, 2011, p. 158) [29]

Steve's case also helps bring into focus the potential benefits for effective leaders to move beyond a Self-Authoring way of knowing, as in Kegan's 4th Order, to a Self-Transforming way of knowing, as in Kegan's 5th Order.

Steve's complexity score of 11:4 on the LDMA is equivalent to about three-quarters of the way through Kegan's 4th Order, the Self-Authoring Mind. At this level of mental complexity, an individual has some MC at the level of Kegan's 5th Order but has not fully consolidated these abilities. This is consistent with Steve's leadership behavior.

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[29] Gardner's eloquent explanation of what it means for a leader to decenter describes behavior one might see from an effective leader with a mindset as complex as Kegan's *Self-Transforming Mind* or Fischer's level 12, *Single Principles.*

As a leader of multi-disciplinary work on cross-functional teams, Steve uses his more complex, Self-Transforming-like MC. On the other hand, as a leader of his own subordinates, Steve exhibits some of his less complex, Self-Authoring-like MC.

Steve tends to act somewhat independently from, rather than interdependently with his staff. When he attends multi-disciplinary meetings with his staff he sometimes overshadows them with his stronger problem-solving ability, rather than stepping back to allow and encourage them to lead and to get most of the credit. Steve's senior colleague Lisa explains:

> …As his people are maturing, he has to dial back more and give them more mentorship behind the scenes and be less present in the meetings … and, if he is present in the meetings, speak less, and give them coaching prior and after the meeting, rather than in the meeting.

Steve's boss Suzy has been encouraging Steve to focus more on building up the team under him, but says he is only 75% of the way there in terms of decentering, encouraging his people to step up, and letting them take the credit. Suzy's assessment suggests that Steve may also be 75% of the way toward Self-Transforming-like MC in terms of developing staff. For example, Suzy planned an off-site planning meeting for the Regulatory department and said that Steve didn't want to be out of the office to attend it because of all the work on his desk. Steve did attend the meeting and conceded afterwards that it had been useful in building capacity, not just for him, but also for the people under him.

LiChong and Neil show a need to decenter through a similar failure to stay in the background and let their subordinates lead. Each has the habit of taking over in a cross-functional team meeting when their subordinates are presenting. Worse, they often grill

their subordinates during cross-functional team meetings. This behavior shows limits in the Self-Authoring MC and in their EI that reduce their LE. For one thing, they are unable or unwilling to exercise self-control by holding their comments and allowing their subordinates to have the chance to own their own contributions and get credit for them. In addition, they are only interested in advancing their own perspective on the issue, unable or unmotivated to engage in the Self-Transforming behavior of stepping back and seeing the limits of their views and ways in which they may be informed by others.

Stop Enabling

The blind spot called *Stop Enabling* emerged from interviews about the three female case-study subjects, Andrea, Jennifer, and Laura. In different ways, Andrea, Jennifer, and Laura limited their own leadership effectiveness by enabling others' strong-willed behavior or by failing to intervene in order to improve their team's performance.

Jennifer and Andrea have the same MC (LDMA) score and EI (MSCEIT) scores in the same neighborhood. Laura has a higher EI score, and there is not an LDMA score for her because she did not complete the instrument. Looking at their LE profiles they look quite different and this is associated with differences in their strengths and limits. Laura and Jennifer exhibit one or more other blind spots (see Table 11-1).

Perhaps there is something to the fact that each of the leaders with this blind spot is a woman. While it is beyond the scope of the present study to address this conjecture, in the future I would like to investigate gender differences with respect to the Blind spots.

One aspect of the too enabling blind spot is giving in to strong-willed others. Interviewees reported that Andrea and Laura both had difficulty dealing with Linda, the

aggressive and hard-charging VP. Neither Andrea nor Laura exhibited the ability to push back on Linda's strong-willed and unreasonable demands. Sarah and Lisa, their bosses, intervened to put an end to the enabling conduct. As each superior explained her rationale for intervening, she illuminated something about the *enabling* limitation. Sarah said of Andrea, "She hasn't had a lot of experience where she has to say, 'No, that's not right. Of course, we're not going to do that.' " Similarly, Lisa said that Laura should know, "she has the latitude, authority, experience, to have a conversation with her boss (Linda). Her boss is outspoken, so it's kind of frightening for her to push back." As Sarah and Lisa's reflections suggest, the limitation of being enabling includes difficulty taking a stand, especially under pressure.

Jennifer exhibited a more subtle form of giving in to strong-willed others. Jennifer reports that she often doesn't speak up with peers across the organization because she doesn't feel that her views will be listened to. Similarly, Laura shows a more subtle way of enabling strong-willed others. Respondents say that Laura should be more active about reining in Dan, her ambitious subordinate who is working on a big project that is a stretch for him. Laura allows Dan to take on more responsibility and authority than is warranted by his position and role in the project. Lisa, who is also Laura's boss, notes that Laura should, "…very clearly delineate with Dan what her responsibility is and what his responsibility is." As Jennifer and Laura's examples show, being too enabling can result from inadequate efforts to manage boundaries with colleagues.

Andrea shows another kind of enabling behavior: failing to deal with poor performers. For Andrea this shows up first as an inability to clearly provide negative feedback when there are initial indications of a performance problem. As performance

problems continue and develop into more serious issues, Andrea also tends to be avoidant and takes a long time to address the problems. For Andrea, failing to deal with performance problems seems to stem from the wish to avoid conflict and her preference for keeping relations positive.

One other kind of enabling behavior is agreeing to decisions in cross-functional meetings in order to avoid conflict. Laura sometimes does this. Her subordinate, Ashok, diplomatically remarks, "It's the goodness of her nature that doesn't allow her to take that adversarial stance, when it probably is required for a situation."

Problems on Teams

Neil, LiChong, Jennifer, and Laura all regularly found the complex task of leading on cross-functional teams challenging. Doing so is inherently difficult because individuals are called on to lead and collaborate with colleagues from other departments and disciplines, often without the benefit of positional authority. This requires self-distancing to see the limits of one's own expertise and discipline, to hold multiple other systems in tension, and to synthesize opposing points of view productively. However, leading effectively on cross-functional teams is vital to the multi-disciplinary work of drug R&D.

The data show two distinct patterns of effectiveness-limiting behaviors on cross-functional teams. One, exhibited by Neil and LiChong occurs when a leader becomes narrowly focused on his or her disciplinary or functional perspective. It overlaps with the *too forceful* theme. For instance, when Neil does not feel the concerns of his group are being met in a drug program team meeting, Jerry explains, he can become frustrated.

Sometimes, Neil loses his calm and begins to express his frustration in the meeting. "You can see when he begins to escalate… the steam starts to rise," Jerry says. At these times, Neil loses his ability to influence others. The second pattern, exhibited by Jennifer and Laura, occurs when leaders are not active enough in cross-functional team meetings. This overlaps with the *too enabling* theme. For example, Jennifer reports, "…in a cross-functional setting… I sometimes find myself not challenging [others] because I have in the past and it hasn't gone anywhere, or I just don't feel like the group's ready to hear it." Sarah says that Jennifer sometimes begins to intervene in a multi-disciplinary meeting, but then gives up without explaining why.

As I have noted several times, the results just presented raise questions for future research. I address implications for future research and educational implications in the next chapter.

12

Future Research and Leadership Education

Questions Raised for Future Research

One of the more important results of the present research is that it raises questions for future research. The question that motivated this study--How do MC, and EI contribute, separately or jointly to LE—needs to be explored further. To do this, more robust research designs in which comparison groups can more easily be sampled are needed. Different comparison groups would be interesting. Contrasting groups might include similar on EI and contrasting on MC; similar on MC and contrasting on EI; junior leaders compared to senior leaders; men versus women; younger leaders compared to older leaders; and cross-cultural comparisons as in leaders from China versus leaders in the U.S.A.

Both qualitative and quantitative studies could be valuable to explore such comparisons. Qualitative studies might generate thick descriptions to illuminate how MC and EI interact toward LE and to paint pictures of contrasting combinations of MC and EI. On the quantitative front, correlational studies might be done to explore the relationship between MC-abilities, EI-abilities, and LE-ratings. To be feasible, such quantitative studies might require narrower questions addressed, in part, through simpler measures of MC and EI abilities. This may imply measures that are focused on parts of MC and EI rather than ones such as MSCEIT and LDMA that are designed to measure broader constructs. Similarly, aspects of LE might be measured.

To list a sampling of some possible, more narrow, questions in no particular order[30]: How do leaders with contrasting levels of MC compare on different aspects of LE? How do EI and MC interact with respect to particular aspects of LE? Does MC enhance insight into complex perspectives and frames of reference in leadership situations?

Other worthy avenues of investigation concern the 7 blind spots. Are the 7 blind spots detected in other samples? Is the mechanism of blind spots as related to MC and EI a robust finding? What is the nature of blind-spot triggers and what do they have to do with MC and/ or EI? Do leaders show variable competence related to their blind spots in different contexts?

Still other questions concern the notion that the hot and cool systems mediate (aspects of) MC, EI and LE. Do MC and EI help cool the hot system? Do the cooling effects of MC and EI work together? Question such as these might lend themselves to experiments and therefore findings that are potentially generalizable.

Leadership Education

One educational implication of this dissertation is that interventions can be developed to help leaders become aware of and begin to address their own blind spots. For example, an intervention can begin with a workshop with the following kinds of agenda items:

- A brief presentation describing the present study, including a description of the leaders in the study and their blind spots.

[30] I thank my readers David Perkins, Bob Kegan, and Adria Goodson for raising many of these questions.

- An exercise to help participants relate to the blind spots with activities engaging participants in questions such as: Do you recognize any of these blind spots in your self or in someone that you've worked with? Are there other blind spots you can think of in your own leadership or in the leadership of those with whom you have worked?
- Presentation of tools to help learners become aware of blind spots and working on dealing with them.

Research marshaled by Walter Mischel in *The Marshmallow Test* (2014) indicates the kinds of abilities that may be helpful for leaders to have at their disposal. Mischel advises that the general strategy for reducing one's vulnerability to the temptation to be reactive is to "cool the now, heat the later". This can be done through strategies to distance oneself from one's triggers such as reappraising triggering events to make them more abstract and psychologically distant. Mischel also stresses the importance of *If-Then* implementation plans (Gollwitzer & Oetingen, 2012). For example, if I have a cross-functional team meeting, then meet with my subordinates to rehearse presentations and gain alignment. To work, If-Then implementation plans require practice. As above, rather than simply introducing the concept of identifying one's blind spot and creating if-then implementation plans in a workshop, effective educational interventions must provide for ongoing practice in one's real-work context as well as feedback on one's efforts to guide further practice. Overcoming the deleterious effects of one's blind spots requires the kind of dedication needed to learn a new language, study a musical instrument, or train for a sport. As in taking music lessons or training for a sport, one needs to take on behaviors to practice in between lessons and then, at each lesson, receive feedback so that one can

make adjustments and practice those adjusted skills. Such an approach can make behaviors automatic--building "muscle" memory and creating new neural connections so that improvement and change become durable.

A longer term approach to helping leaders cool the now and heat the later might be interventions to help leaders increase their MC and EI. For example, Kegan and Lahey's book *Immunity to Change* (Kegan & Lahey, 2009) describes a process for helping leaders increase MC. In terms of EI, educational programs such as those suggested in *Beyond Reason* (Fisher & Shapiro, 2005) and *Difficult Conversations* (Stone, Patton, Heen, & Fisher, 2000) are excellent.

To return to a core notion that motivated the present study, such educational interventions are premised on the possible joint effects of MC and EI. At present, EI trainings are much more common than interventions aimed at increasing MC. Perhaps this needs to change. Organizations may do well to consider helping leaders develop EI and MC together.

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