

Principal Investigator Advisor

Article Submitted by: Corporate Content Inc.

December 14, 2009

Principal Investigators as Managers ***Recognizing Strengths and Challenges***

For many principal investigators, their education, i.e., undergrad, grad school, doctoral programs, and then post-doctoral studies in someone else's lab, rarely contains management training. Yet as professors in academia or lead scientists in corporate labs, they are charged with producing excellent science as well as managing their groups. How well equipped are they for the task, if they "never experience a single hour of training to help them manage themselves or others?" That rough truth, stated in *Lab Dynamics: Management Skills for Scientists*, by Suzanne L. and Carl M. Cohen, sets the stage for looking at what scientists bring to the table as managers.

It's a Process

On the job "management" training for principal investigators often comes at a time when the stark transition from individual contributor to manager is taking hold. Principal investigators may have learned a thing or two from their own managers, but that may not be a plus. According to the Cohens' work, leading scientists are often labeled as arrogant, unsociable and overly dominant or driven. What do you learn when your mentor possesses those traits?

For many professionals, the change from having responsibility for playing one instrument to becoming a conductor for the orchestra can be challenging. But for principal investigators, there's a huge difference between a role performing one task, e.g. running lab tests, and responsibility for setting and implementing a group of tasks for a team. Most new managers figure if they know the science, that's all that really matters. But that's not true.

Since those who enter the sciences tend to draw the short stick on understanding interpersonal cues, the Cohens observed that they may not realize how important it is to learn "how to understand, relate to, and respond to people you manage and with whom you work." Yet for scientists, these management skills are more important for success than traditional management fundamentals such as budgets, goal setting and time management. Why? Because science types as a group, are weaker than others on interpersonal awareness and self-awareness skills.

But all is not bleak. Scientists tend to be emotionally stable, and open and flexible in thought and behavior. These natural strengths are valuable assets for managers.

Strengths of Scientists as Managers

To learn more about how strengths of principal investigators actually facilitate their roles as managers, we spoke with Steve Balzac, President of 7 Steps Ahead, a management consulting and organizational development firm. Balzac's insights are unique because not only is he a professor in his field, but he formerly worked on research projects with PIs. In his view, PI's strengths as managers are:

- **Rigorous scientific training is a valuable methodology.** The process of learning to become a trained scientist can be applied to skills needed as a manager. At the least, PIs possess the tools to *learn* to be good managers.
- **Well suited as coaches/mentors.** Since PIs know the lab domain inside and out, they are often in the best position to coach and mentor people in the lab. Unlike some managers who have not done the job of those they manage, PIs can relate to people who work for them; they've often been in their shoes.
- **Well versed in "Systems."** Scientists are able to think in system terms – to solve complex problems with complex interactions. If managing a team is approached as a complex system, with the wild card of human dynamics, PIs may have an easier time dealing with management issues.

According to Balzac, when people are under stress, they will naturally gravitate to what they do best. He notes that professional athletes and those in martial arts train day after day to cope with stress, because they must not only perform well, but perform well under pressure. For scientists as a group, if a situation is ambiguous, the default behavior will be to engage in activities that are most comfortable to them. That may not include masterful management to get the most out of the people in their group.

Challenges for PIs as Managers

Managing a team, with a lot of different personalities, requires people skills that are fuzzier than let's say math equations. PIs face their most serious challenges when they are faced with ambiguity and can't slot the situation into something they know.

According to Balzac, this is the number one challenge PIs face. Here are some others:

- **Ambiguity can lead to anger.** When things don't go right or a PI is faced with ambiguity, anger and frustration are often the by-product. If the anger and frustration isn't channeled into productive solutions, there can be a breakdown in communications.
- **Autocratic problem solving and feedback.** It takes a skilled manager to deliver feedback in a way that keeps a worker motivated and focused. For many scientists, it is difficult to see the big picture – that there may be different

approaches to solving problems. Often a PI will only accept their own solutions, thus stifling input from others. Ultimately PIs must learn that effective feedback is based on hearing others' approaches to solving problems, not always "my way or the highway."

- **Effective goal setting is critical.** In order to evaluate how a project is coming along, there needs to be a way to measure and evaluate progress. How else can you determine if something is on track and/or ultimately successful? It's important to let other people do the work, but pin down what they do and monitor progress – with goals as the checkpoints.

If PIs fail to set effective goals with those who work for them, a system breakdown is likely. According to Balzac, people have to have enough autonomy to organize their time and work in a way which suits them. The secret to managing autonomy is structure, according to Balzac. If PIs build in too much structure, they can suffocate their team; if there is too little, chaos results. Finding a good balance is critical.

Balzac illustrates the dilemma with a problem one of his clients faced:

The PI was overseeing an experiment and after several months of unsatisfactory results with one of the scientists in his lab, he tells her she's not working hard enough. She tries to explain the problems she's encountered but he's convinced that she's lazy or just not doing the work required, and fires her. He hires a second scientist and again when the results were not forthcoming as expected, he claimed the scientist wasn't working hard enough and fired him.

A third person was hired and the same difficulties began to unfold. Again the PI claimed that the experiment wasn't working properly because the researcher wasn't working hard enough. Angry about the string of slackers, he fired the third person. Then the PI learned that the protocol was incorrectly published in the paper, and it was not possible for the experiment to work.

Not only had he needlessly fired three people after substantial name calling, he proved himself to be an inept manager. And it all could've been avoided had the PI focused more on the situation, and less on the person.

With proper monitoring and an openness to feedback, the PI would have become aware of the problem sooner. Scientists have to remember to look at the whole situation, i.e., the system, and not just the person. In Balzac's experience, "the biggest trap that scientists turned managers face is that "they forget how much emotions can impact a situation." Unfortunately the workings and interactions of the "human organism" don't necessarily fall into tidy boxes. Sometimes the human organism can appear irrational!

Self Awareness is Critical

Recognizing that “emotional intelligence” is essential at work is important for PIs. Since scientists as a group are less likely to be in touch with interpersonal dynamics, it’s critical for PIs to notice what they feel and think, consider what others feel and think, and even anticipate what behavior will result because of what they say or do. The good news is that self-awareness is a skill that can be learned and PIs are flexible and open enough to do so. Plus, as the Cohens point out in *Lab Dynamics*: “Technical professionals have a high capacity, motivation and willingness to learn and improve.” That may be the best strength that PIs bring to their jobs as managers.