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Leadership as Your Lodestar

Congratulations – you landed your dream job and now have a shiny new lab to show for it! Before you start to stress about submitting your proposals or what to wear to your first departmental meeting, consider this: the future success of a new PI depends as much (or more) on their leadership, management skills (paperwork, managing money), and ability to empower others to do their best work (mentorship), as their academic prowess[1]. Even so, two-thirds of PIs are thrust into these roles with little or no training and, for better or worse, acquire these skills on the job[2].

So, what is good leadership? Are there specific traits of successful leaders? My graduate and post-doctoral research advisors ran the gamut of academic leaderships, from the very worst to the very best. On one hand, I've been very fortunate to have great mentors and an early introduction to model leadership. These faculty led by example, were not afraid to roll up their sleeves and get their hands dirty, and had the emotional intelligence to provide the right support for lab members at the right time. The worst leaders enforced the hierarchical model of leadership: constantly micromanaging, being dismissive of ideas or results, ignoring lab personnel issues, reacting in a very hostile fashion to suggestions, and plagiarizing my results for their own manuscripts. Sadly, these experiences are neither unusual nor uncommon.

There are calls for a paradigm shift in leadership[1] from traditional hierarchical approaches to ones that better reflect the societal technologies and economic restructuring of the 21st Century[3,4]. In turn, we have been introduced to 'systems thinking' and models that view leadership through the lens of complex adaptive systems[5]. While these models can help us to distinguish leadership from management (e.g. paperwork, bureaucratic functions), many of the elements of complex systems are the everyday stuff of lab leadership, such as networking, collaboration, transparency, teamwork, and unpredictability (surprise results)[3]. Learning to apply systems thinking effectively remains a tough nut to crack. The challenge is how to move from models and generalizations to tools that support more effective leadership.

Specifically, we need to look to the tools developed in sync with complex systems theory, such as Agile (or Lean-Agile). This is not a product per se but an idea that defines a target culture and how we could do things to better succeed in research[6]. In a nutshell, your lab culture is the values and norms within the group. Organizations conform to one of four basic cultures[7]: Collaboration (productive partnerships); Control; Competence (being the best); and Cultivation (learning, growing people). Not surprisingly, the core tenets of Agile are Collaboration and Cultivation. As a first step, ask: What is the culture of your lab?

As scientists, we value and pursue Collaboration, both within and between labs groups. Then there is Cultivation, where great leadership is not about selecting the best ideas to be cultivated. Instead, it is about cultivating a lab culture where the best ideas evolve from the interactions between lab members and everyone contributes to the success of projects[8]. Here are some thinking tools for understanding Agile in leadership[6].

1. The focus is on lab members.

-**Give the lab time and space to self-organize** and for individuals to define their roles in lab leadership. See: https://management30.com/product/meddlers/

-Foster experimentation, reflection and adaptation: Set aside time for Exploration Days-These are an invitation to your lab members to learn and develop themselves by running experiments and exploring new ideas. Let the lab decide on their focus and how they want to demonstrate their work at the end of the day.

-Amplify their learning and build knowledge: Identify the core skills and capabilities that all lab members need. Invest in intensive individual mentoring as well as advanced training for lab members.

2. Work the social network:

-**Skills and behaviors** can be transmitted from person to person in the lab. Change spreads more easily when influential people adopt new skills. Who are the connectors in the lab who can influence people? To boost interactions between lab members, construct personal maps for each member (https://medium.com/@ahuijsen/management-3-0-personal-maps-1-24acd779ce86).

3. Change the environment:

-Make conversations, not decrees: Increase lab member contributions to idea-generation, project planning and analyses. Develop the habit of consulting the lab on a daily basis about what is working, what's not, and what can be improved. Tell a balanced or even hard truth without patronizing.

-Give rewards and recognition and celebrate: Applaud those who did the hard work and take the time to celebrate important incremental results, presentations, or papers accepted, as well as personal milestones. Also consider recognition using Kudo Cards**, which are** small and unexpected tokens of thanks from the PI or peer (https://management30.com/product/kudo-cards/).

-Eliminate anything that is not of value to your lab's products, e.g. partially completed research; partially-processed samples, and old ways of operating. Double down on what works and let the rest go.

One final note: Your lab group is unique. Experiment and develop new practices that best match the needs of your lab members.

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