

Surfing the Leadership Pipeline – Growing Leaders from within STEM

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The Merrill Retreat topic for 2022, *Surviving and Anticipating Waves of Change*, elicited in me a wave of self-reflection during what would reveal itself to me as one of my own personal years of tumult. Survive and anticipate – two words that were impressed upon me during my youth as a Boy Scout, not during my years as a university administrator. Two words that might have been used by Lord Robert Stephenson Smyth Baden-Powell, otherwise known as Lord Baden-Powell of Gilwell, England, the founder of a movement that would become Boy Scouts in 1908, and more recently Scouting. Survive and anticipate – Baden-Powell came to refine such terms into the Scout Motto: “Be Prepared.” Lord Baden-Powell published his renown book, *Scouting for Boys*, in 1908, which launched a world-wide movement.¹

According to legend, upon hearing the Motto, “Be Prepared,” someone asked Baden-Powell, “Be Prepared – for what?” His reply, “Why, for any old thing, of course.”² Surviving and anticipating waves of change in public research universities requires us to Be Prepared – for any old thing.

Baden-Powell’s British Scouting movement was really a grass-roots self-assembly of boys and girls who arranged themselves in patrols, per his book, and then troops, with volunteer adults to serve as guides and teachers. With growing interest for Scouting by youth in Britain, Baden-Powell came under public pressure to create separate organizations for boys and girls, so he invited his sister, Agnes, to lead the Girl Guides in 1910. Nevertheless, in the early days of Scouting and Guides, the Oaths, Laws, and Mottos were built around the same principles of youth leadership. In 2018, girls were formally welcomed back into Scouting in the U.S. with the formation of girl Cub packs and Scout troops.²

This year, 2022, began with the death of my father, Albert J. Dorhout, who, by age 85, had led a life committed to service as a public school music teacher and

leader in gifted education in the U.S. While helping my mother sort through his books, I came upon his 1948 copy of *Handbook for Boys*,³ the U.S. edition of Baden-Powell’s book. Within its tattered covers are dog-eared pages and hand-written notes made by a 12-year-old boy. In his own hand, my father recorded his thoughts on leadership, being prepared, and being a servant leader in the margins beside meaningful passages by Baden-Powell on the same.

Al Dorhout earned his Eagle Scout in 1951, like his uncle before him in 1934. I earned my Eagle Scout in 1977. We are members of an elite group of people – only 4% of Scouts earn the rank – that includes leaders like President Gerald R. Ford, Secretary Rex Tillerson, Nobel Laureate Dudley Hirschbach, and President E. Gordon Gee, president of the University of West Virginia. My leadership style, which was formed by Scout leaders and my own experiences in Scouting, continues to build on principles like servant leadership, do a good turn daily, and be prepared. Through this paper, I will argue, through demonstrative examples, that building diverse leadership pipelines will enable higher education to be

prepared to successfully survive and anticipate waves of change. After all, those waves of change could be any old thing.

Leading in the Profession

Although I had been connected with my professional organization, the American Chemical Society (ACS), as a member and subscriber to my favorite chemistry journals and attendee at the regular national meetings to present papers for many years, participating in the ACS as an engaged member didn't occur until I was invited by a local ACS member in Colorado to consider joining a committee in 1995 – the Younger Chemists Committee. This national ACS committee is dedicated to creating programming and professional development opportunities for chemistry professionals who are early in their careers, whether they be in the academic, private, or government sector. As a complement to this programming, the ACS organized an annual retreat for newly elected leaders to provide a professional kit of management tools – how to run meetings, how to create programs, and how to promote chemistry to the general public. The missing elements to this retreat were in leadership development.

As my volunteer commitments expanded, I found myself in discussions with senior leaders in ACS who often lamented the lack of a “leadership pipeline” for the ACS and the profession. A gap analysis revealed that we were assuming that our elected leaders possessed a set of leadership skills and ACS provided them with management tools to help them succeed in their volunteer roles – that assumption about leadership was far from reality. I was invited to join a task force that was established by ACS to create a formal Leadership Development System (LDS) that would provide leadership training, as well as management tools, in order to improve the ACS and its members.⁴

The new LDS was designed in part-

nership with Joseph Folkman using his book on extraordinary leaders.⁵ Over the course of three years, the LDS emerged as a system of 16 modules comprising four-hour facilitated sessions combining leadership competencies built on ACS principles, as well as a suite of project management tools. These modules were organized in core competency areas, each with increasing leadership responsibilities aligned with the needs of not only the ACS but also the broader professions within the chemical sciences. A 360-degree feedback assessment tool combined with an eight-hour workshop on leveraging strengths was designed for senior leaders. By 2009, ACS had created a system that was designed to build leaders among its many thousands of volunteers, offering the modules at local, regional, and national meetings as well as online.

Leading in Academics

Along my personal leadership journey, I was invited to serve on many local and national committees related to chemistry and academics. One particular service role that I have embraced since 2002 has been as a member of the Board of Directors of Research Corporation for Science Advancement (RCSA). I embraced this opportunity with RCSA because I believed in the principles of the foundation. Created in 1912 by Frederick Gardner Cottrell, RCSA has been dedicated to supporting education and basic research in chemistry, physics, and astronomy, preceding the National Science Foundation by decades and serving as one of only a handful of foundations in the early decades of the 20th Century to do so.⁶ In 1994, RCSA launched a new award for pre-tenure faculty who were dedicated to the principles of Cottrell: research and teaching – the Cottrell Scholar. When the Board created this award, it did so in order to recognize faculty, early in their careers, who would be leaders not only in their fields but also at their colleges and universities. I was fortunate enough to

be selected a Cottrell Scholar in the inaugural class of 1994, which began my decades-long relationship with RCSA.

The goal of creating leaders through the early recognition of talent as a faculty member, while laudable, lacked assessment, metrics, and a thoughtful correlation of early career success in a discipline with increased skills in leadership. The RCSA Board struggled with this apparent dichotomy of skill sets, as did the Cottrell Scholars Collaborative, a self-assembled group of Cottrell Scholars who met each year to discuss strategies for moving academic science forward through teaching and research. Tangible outcomes of the Collaborative in the areas of research and teaching include the RCSA/ACS New Faculty Workshop started in 2011,⁷ the effective evaluation of teaching in STEM,⁸ and techniques in course-based undergraduate research,⁹ among many others.¹⁰ Together with a core of three other Scholars, I tackled the challenge of building academic leaders in 2015 by creating a partnership with the ACS and its counterpart, the American Physical Society (APS), in 2015, that would leverage the ACS LDS offerings while tailoring a workshop to the unique needs of building leadership for the college or university environment: the Academic Leadership Training Workshop.¹¹

The Academic Leadership Training Workshop

The Academic Leadership Training Workshop (ALT) grew out of many of the basic principles of learning that the Collaborative developed over the years and incorporated some of the learning principles embedded within Scouting: Explain, Demonstrate, Guide, and Enable – the learning EDGE in Scouting.² ALT was designed to engage Experienced Academic Leaders (EALs) and roughly 40 to 50 ALT “students” in learning the general principles of leadership, engaging in case study discussions, and developing work products, such as personal leader-

ship statements, visioning exercises for example leadership positions, and mock interviews for leadership positions. The methodologies and approaches for engaged learning also followed the Discipline-Based Education Research (DBER) principles.¹² A paper describing the initial ALT Workshops and our design was published in 2017.¹³

One foundational element of the ALT Workshops is the principle of shared governance in academics, regardless of whether the setting is a research-intensive graduate university or a predominantly undergraduate institution. One of the key challenges of academic shared governance is the lack of formal leadership development within colleges and universities, programs like HERS,¹⁴ ELATES,¹⁵ and ACE Fellows¹⁶ notwithstanding. An additional challenge with the shared governance model of leadership is the apparent dichotomy of the research and teaching missions of colleges and universities – one funded through primarily extramural funding and the other through tuition and public general funds. The unique model of the Cottrell Scholar, and the Collaborative, is the intentional integration of teaching with research that this group of over 300 faculty Scholar “alumni” has embraced since the creation of the Cottrell Scholars program in 1994.

The objectives of the ALT Workshop were covered in our 2017 paper¹³ and are articulated here. The three-day workshop includes a pre-workshop 360-degree feedback assessment with input from 12-15 professionals identified by each participant. The results of those assessments are discussed at a tailored half-day session at the start of the workshop. The remaining workshop sessions include interactive panel discussions, case study discussions, and breakouts on critical topics for success in a variety of academic leadership positions:

1. Why you should become an aca-

- demic leader
2. Vision (opportunities and challenges) at the start
 3. Leadership: finding and leveraging your strengths
 4. Conflict resolution for academic leaders
 5. Engaging and motivating colleagues & staff
 6. Managing outside research: outreach
 7. Managing outside research: diversity
 8. Managing outside research: legal concerns
 9. Fundraising and stewardship
 10. Managing up and managing down
 11. Time-management and other challenges for academic leaders

Following the three-day workshop, our goal was that participants will: be motivated and prepared for academic leadership role; be able to use skills and tools from ALT to be more effective academic leaders; focus on improving their leadership strengths towards being extraordinary leaders; know the range of duties and obligations required of academic leaders and be prepared to address them; be prepared for interviews and their start as an academic leader. In addition, the ALT participants will have a cadre of peers who may serve as collaborators and informal mentors throughout their leadership journeys.

By early 2020, four ALT Workshops had been held, and an assessment of pre- and post-workshop assessments had been performed across two core growth areas: knowledge and confidence gained. On a Likert Scale of 1 to 5, where 5 indicated the highest score, the pre- and post-workshop assessment showed significant increases in knowledge gained for: leading above and below on the organizational chart; fundraising activities; managing legal concerns; engaging and motivating colleagues and staff; managing conflict;

personal leadership talents; creating, articulating, and managing a vision; and knowledge of rewards and opportunities to advance science and the profession through academic leadership. The pre- and post-workshop assessment showed significant increases in confidence gained for the same areas.

Where Are They Now?

Following the last in-person ALT Workshop in late February 2020, an abridged version of the Workshop was held in 2021 as a virtual workshop. Shortly thereafter, several key staff members at ACS, who had helped organize and host the in-person workshops since 2016, changed roles or left ACS. In the late spring of 2022, with the ALT Workshops in hibernation and in need of renewed funding, a longitudinal study of the ALT participants and their perceived impact of the skills learned at the workshops was in order. Working with the Iowa State Center for Survey Statistics & Methodology-Survey Research Services (CSSMSRS) and the ISU Institutional Review Board, I set out to assess the strengths and challenges with the ALT Workshop through a comprehensive survey.

As the ALT Workshops were designed and initially funded, the ALT leadership team invited members of the Cottrell Scholars cohorts, from 1994 to the present, as well as other emerging academics in chemistry, physics, and astronomy, to attend each workshop, with an ideal cohort of participants numbering between 40 and 50. Out of 237 ALT participants, 37% responded to the assessment survey. Although the community of Cottrell Scholars is fairly diverse in gender identity relative to the disciplines (26% identify as female), the nomination process was intentional at creating cohorts with greater ethnic and gender diversity. The survey respondents self-identified as 39% belonging to traditionally underrepresented populations in STEM, which is close to the data from the workshop reg-

istrants.

The survey sought to determine which cohort members had been in a leadership role prior to the workshop and which did not. The assessment kept these two groups separate in order to determine whether the workshop had an impact on only new leaders, new or continuing leaders, or only on continuing leaders. Of the respondents, 53% started the workshop with a leadership role and 30% of those were at R1 universities. The leadership positions were distributed across a set including department chair, center director, associate/dean, and associate/vice president for research. Of those participants with leadership positions when they attended the workshop, 45% are continuing in the same role. Of the remaining respondents, 73% are in new leadership roles. The remaining have served out a full term or have decided to seek other leadership roles.

Respondents continuing in leadership roles were asked to identify how well the ALT Workshop helped them continue to be successful in their roles and how well it prepared them to seek new leadership roles. Overall, respondents felt that the workshops significantly prepared them to continue in the role (76% indicating “well” or “very well”) and significantly helped them be more successful (72% indicating “well” or “very well”).

Of the respondents who did not begin the workshop already in a leadership role but who attained one since the workshop, 50% of those were at Carnegie Classification R1 research intensive graduate universities. Those new leadership positions were distributed across a set including department chair, center director, associate/dean, and associate/vice president for research. At the time of the survey, 82% remained in that role. From these respondents, 67% agreed/highly agreed that the workshop prepared them for the job and 88% said that the workshop prepared them to be successful in the role.

Of all the respondents who were not currently in academic leadership positions, 75% remained interested in attaining one. Of all the respondents, 76% attained or continue to hold leadership positions in academics. Finally, of all the survey respondents, 93% would recommend or highly recommend the ALT Workshop to an emerging academic leader.

Along with Likert scale responses about the workshops, respondents provided free text responses to several questions about aspects of the workshop they liked, items they wish they had learned, and points of pride during their term in leadership. The first two items will factor into a refresh of the workshop. The last item is worth providing some concrete examples for this paper.

Unfortunately, little time is spent reflecting on the very positive, non-remunerative aspects of leadership in higher education in leadership training sessions. Leadership, especially servant leadership, should reflect on the challenges a group has and recognize the collective success towards reaching goals and milestones. Nevertheless, servant leadership should not be without personal goal setting and success, so I hold up selected points of pride from the survey here:

“Brought together the team of staff to really start to feel like a team and not a group of individuals; professional development of staff.”

“Increasing participation rates from under-represented groups in our graduate program.”

“More transparent communication to the whole department on the behind the scenes running of the department – built trust.”

“Increased equitable access to available resources.”

“Continuity of programs through research slowdowns during the pandemic.”

“Good communication and transparency with faculty.”

“I was able to redesign faculty governance, clarifying faculty roles and making service more purposeful.”

“Increasing transparency about criteria used for faculty evaluations (periodic and rank/tenure decisions).”

Surfing the Leadership Pipeline

Surviving and anticipating waves of change in public higher education will rely on building a pipeline of leadership from within our colleges and universities. In an environment of shared governance, growing faculty leadership with shared values for public higher education – research, teaching, service, and outreach – should be an imperative. Emerging leaders in the ALT Workshop discovered that building trust is one of the most important aspects of leadership. This bears out in the points of pride through improved communications strategies, transparency of process and budgeting, and the continuity of programs through significant adversity. For universities to not just survive but succeed and thrive through waves of change, they will need to build a pipeline of trustworthy leaders across the academy to rekindle the trust that has been damaged, if not lost, according to

our stakeholders, over the past few decades.

I will close this paper by reflecting on two final aspects of Scouting that have stayed with me, and these were underscored by my father in his bedraggled Scout *Handbook*.³ The first item in a list of 12 tenets of the Scout Law is Trustworthy. “A Scout is trustworthy” has stayed with me since I first spoke the Scout Law in 1972. I believe that it is first among the tenets because it is the most important one. To be a successful servant leader is to be trusted. Whether you are a young person of 10 or 11 years, a junior faculty member establishing an academic reputation, or a novice leader in a program or department, being trustworthy is at the foundation of shared governance.

The second aspect is Do Your Best. The Scout Oath begins with, “On my honor, I will do my best...” It does not state that “I will be the best” or that “I will accomplish everything I try”; the Oath says, “I will do my best.” Leadership, through trust, relies on each of us to do our best. Leadership is a commitment to a collective vision for a college or university. To do our best requires that we are prepared for the unexpected and have built the trust of our faculty, students, staff, and external stakeholders that we will act in the best interests of those whom we lead. Simply put, surviving and anticipating change in higher education will require a commitment to build leaders, to be prepared, and to do our best.

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