

Transforming Science and Engineering  
ADVANCING ACADEMIC WOMEN

*Abigail J. Stewart, Janet E. Malley,*  
& *Danielle LaVaque-Manty*

EDITORS

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## Maximizing Impact

### LOW-COST TRANSFORMATIONS

*Lee Harle*

ONE OF THE goals, indeed requirements, of the ADVANCE Institutional Transformation program is to disseminate programs that have been successful in recruiting, retaining, and promoting women faculty in science and engineering to the university community. The purpose of this chapter is to highlight a number of programs that have had a high impact relative to their financial and personnel costs. For example, many programs focus on community-building through professional development and informal meetings over meals. Networks are quick to form, and new faculty experience near-immediate benefits. By encouraging institutions outside of the ADVANCE network to promote similar activities, the program hopes to contribute to a fundamental transformation of community-building within the science and engineering academic enterprise nationwide.

#### Programs for Faculty

New faculty often comment that on their first day, they are given the keys to their new office and told, "See you in six years at your tenure review." At many institutions, they find little or no guidance regarding the tenure and promotion process, and rumors and myths fill the vacuum. In most cases, senior faculty and administrators assume that tenure requirements and the mechanics of the promotion process are obvious,

but they usually are not. ADVANCE programs at many institutions have developed a variety of low-cost activities to address this need, some of which are highlighted in this section. These include mentoring, networking, and professional development. Tenure, promotion counseling, and grant writing skills are also targeted.

In addition to programs for junior faculty, several institutions have created activities that benefit all faculty through community-building and provide venues for professional development. Many new faculty find them particularly useful for networking outside of their disciplines and improving communication and collegiality. Broad-based activities that work to influence large numbers of faculty by building a stronger community have excellent potential for achieving institutional transformation. These range from formally organized activities such as lunch series with speakers and workshops to more informal gatherings. The more formal gatherings usually require more advance preparation for topic and speaker selection. Both can have significant effects.

The activities discussed here require minimal cost and setup. A professional group such as the University of Michigan's Network of Women Scientists and Engineers, for example, can become self-sustaining once it is initiated by ADVANCE, with lasting impact and minimal cost. In some cases, faculty must be paid for their contributions, but ADVANCE typically organizes and advertises the events, and senior faculty often volunteer their expertise for mentoring, networking, and advising on promotion. If a welcome reception is organized for the fall, for example, the cost includes organizing and advertising, and providing a catered meal. Professional development workshops may also run from low to moderate cost. Materials developed by other institutions, such as those developed by Hunter College and discussed elsewhere in this book, may be adapted for use at no cost. When outside experts are brought in for the workshops, expenses can be kept reasonable by sharing them among several sponsoring units or departments.

#### *Mentoring*

Approximately eighty men and women, drawn from the STEM tenure-track faculty population of about three hundred people, participate in an ADVANCE mentoring activity at New Mexico State University. The participants complete a questionnaire with which they are assessed and assigned to an advisee. Mixers and informal lunches covering various discussion topics are organized, and many mentoring relationships have

resulted. Events such as potluck dinners have been organized to bring together faculty members and their families. These are not only popular, but also low-cost, and they foster network building. For example, they helped develop a collaboration among four women engineering faculty from four different departments, three of whom were junior faculty. This support network has been extremely vital to its members' professional survival and development.

### *Networking*

Networking can happen spontaneously whenever groups of people are brought together, but it can also be catalyzed by a formally organized event or series of events. Networking is driven by groups larger than those typical of mentoring activities and has benefits beyond mentoring. Participants benefit by meeting new individuals and gaining access to new organizations across campus. The University of Michigan and Virginia Tech have both developed venues to foster networking among women faculty, ADVANCE, and various women's groups on campus. These activities have led to the development of leadership workshops and mentoring initiatives sponsored by ADVANCE, as well as collaborations with the universities' women's centers and programs. At Michigan, the Network of Women Scientists and Engineers, composed of tenure-track women faculty in science and engineering across the entire campus, meets several times each year to talk about issues the members have in common and develop plans for the future. For example, during the first year of its existence, the network asked ADVANCE to provide leadership workshops, which were planned and paid for by ADVANCE. Network members, who were inspired and motivated by what they learned, took the initiative the following year to design an extensive weekend leadership retreat of their own, drawing on financial contributions and staff support from ADVANCE but choosing all participants and topics themselves.

At Virginia Tech, AdvanceVT cosponsors two informal receptions, one to welcome new faculty and graduate students in the fall and one during Women's Month in the spring. A number of groups cosponsor these events, including the Women's Center, the Graduate School, the Women's Studies program, the Organization of Women Faculty, and Women in International Development. These events provide an opportunity for the women's groups to interact, introduce AdvanceVT across the campus, and introduce the new women faculty and students to the

resources available to them. Involving cosponsors across campus taps into resources not available in many science and engineering departments, providing opportunities to reconnect with colleagues and meet new people.

### *Professional Development Workshops*

Several institutions have developed workshop activities covering topics that particularly target pre- and early post-tenure faculty, such as funding and proposal writing, negotiation, mentoring, tenure and promotion advising, creating a teaching portfolio, managing a lab, advising graduate students, and communication skills. They can be tailored to target faculty's specific needs based upon feedback, and are an example of how ADVANCE can employ homegrown talent and expertise, as many institutions have found that faculty are eager and able to assist in organizing and producing the workshops. Peer-to-peer interaction often appeals to junior faculty. For example, the University of Washington ADVANCE Center for Institutional Transformation (CIC) has found that the junior faculty prefer to hear from their peers rather than an external consultant. Faculty from twenty-one different departments organize and run the workshops, and the peer-to-peer format resonates in a very meaningful way.

The University of Rhode Island ADVANCE has partnered with their Research Office to sponsor workshops covering many of these same topics. The well-received Negotiations workshop is facilitated by faculty members with training in negotiations and focuses on women, using a panel format with role play and discussion. Their Mentoring workshop is also very popular, facilitated by three experienced faculty mentors and three new mentees. Following a panel presentation, the audience participates in small-group discussions of specific mentoring scenarios. The workshop concludes with the participants generating a best-practices list for mentors.

Other institutions have utilized both internal and external workshop facilitators. For example, ADVANCE at the University of Maryland, Baltimore County, has partnered with other groups on campus such as the Faculty Development Center to cover the costs of sponsoring outside speakers, although internal faculty are used as well to facilitate their Faculty ADVANCEment workshops. The workshops have sparked follow-up discussions and encouraged greater transparency and clarity of expectations. Tenure workshops are facilitated by two senior faculty

who have been advising junior faculty informally for many years, allowing them to formally disseminate their wisdom to a broader audience. In addition, the men faculty have become engaged in the ADVANCE program by attending these workshops with their women colleagues. This activity promotes the understanding that professional development activities can benefit the entire community, both women and men.

Prior to the beginning of Utah State University's ADVANCE program, training on grant tools available through the Vice President of Research (VPR) office was underutilized and largely invisible. In response to faculty requests, ADVANCE cosponsored and organized research workshops. The VPR office recognized the high level of interest and the efficiency of this program in training faculty, and hence has assumed the responsibility of organizing a research workshop week. The workshops focus on helping faculty be more efficient and effective in the grant and funding process. Topics include using research database systems, grant-writing skills, technical writing skills, working with NSF, NIH, and other funding agencies, and experiences of faculty who have been successful in receiving high-profile research awards and grant funding.

This VPR-organized forum allows senior faculty to disseminate their expertise to other faculty members and lets junior faculty make more effective use of their precious time. The VPR office has become more efficient in assisting faculty, thanks to a venue that promotes two-way communication between faculty and the VPR/Sponsored Programs Office (SPO) and presenters. High-level buy-in at the VPR level ensures the visibility and continued success of this program and encourages community-building across all levels of the faculty.

#### *Tenure and Promotion Advising*

Several institutions have instigated simple yet effective efforts to assist pre- and early post-tenure faculty in navigating the tenure and promotion process. The University of Washington, Georgia Tech, and New Mexico State University have all developed similar Professional Career Development Consulting programs to provide advice to tenure-track faculty on their tenure and promotion packages while creating transparency in the promotion process. Senior faculty who either are currently serving or have previously served on their respective college's promotion and tenure committee discuss career paths with individual faculty members. Drawing upon this unique perspective, the senior fac-

ulty provide feedback on preparing and strengthening the curriculum vitae and navigating the promotion process. At Georgia Tech, the program includes workshops on demystifying the promotion and tenure process led by professional development consultants. With buy-in from the provost and the deans at New Mexico State, deans and department chairs participate and encourage their faculty to participate. With this kind of top-down support, these events are very well received.

Utah State University developed an informal format for promotion advising after ADVANCE discovered, based on interviews and collected data, that mentoring drops off dramatically post-tenure. They discovered that getting a promotion advisory committee together was difficult, due in part to inaction by department heads. They organized a brown-bag lunch at which the vice provost and women full professors provided advice to women associate professors seeking promotion. Two women who attended formed committees and were promoted to full professor, and several others have formed and met with promotion advisory committees in preparation for being considered for promotion. The informal setting and small group size allowed women to voice their individual concerns freely, without feeling inhibited. They were able to ask very specific questions and receive feedback on what they could do to address concerns and move the process forward. The brown-bag session also allowed central administration to hear about faculty concerns. ADVANCE found that it can be very beneficial to place small groups of women or marginalized faculty in a comfortable setting in which they receive advice on faculty policies and career development directly from the university administration.

As a result of the brown-bag session and the gathering of other institutional data, ADVANCE took the initiative to make changes to the section of Faculty Code relating to promotion and tenure to provide more mentoring to associate professors. Associate professors will now form promotion advisory committees no later than three years after tenure. This low-cost event, simple to organize and advertise and held in a nonthreatening environment, has catalyzed a significant improvement in the way advice on promotion is communicated to post-tenure faculty.

Several institutions, including the University of Rhode Island and the University of Washington, have implemented highly successful, well-attended lunch series for women faculty and graduate students, primarily from the STEM community but occasionally for the entire campus. The lunches establish venues for panel discussions and presentations

on a variety of topics. The University of Rhode Island "Topical Lunch Series" covers a wide array, from paper publishing to dual-career and family-friendly issues, to navigating tenure and promotion. Although one external speaker has been invited, typically internal "experts" in each area have facilitated the lunches. The ensuing discussion and professional networking have inspired faculty, particularly new STEM faculty, to make connections with other women outside their own areas. The University of Washington CIC "Mentoring for Leadership" series invites woman scholars in leadership positions to discuss their career trajectories and what they enjoy about leadership. Both internal and external speakers who are deans, presidents, or faculty who have studied leadership are invited. The speakers tell their personal stories, how and why they have done the things they have, and what they would do differently if they could. Distinguished speakers who visit campus to give seminars are asked to make time in their schedules for lunch with the women faculty. The lunch has turned into a group mentoring experience, with attendees networking and building relationships among themselves, as well as with the speakers.

Whether lunch seminars cover a wide variety of issues or focus exclusively on one, such as leadership, the impact on professional development is similar: mentoring and networking happen naturally when groups of faculty are brought together and encouraged to take advantage of the opportunities to build community.

At Utah State University, the Biology department faculty have established coffee hours, because the department's thirty-eight professors overwhelmingly desired more communication and collegiality and decided as a group that they needed a faculty lounge and social time. Weekly coffee hours are held on Friday mornings, with the faculty on each floor of the Biology building organizing the coffee hour for one month. They plan the food and prepare the coffee; each floor pools money together to pay for the food and drink. The junior faculty, especially, are regular attendees and enjoy the chance to interact with other faculty in an informal manner to ask questions and learn more about the department and university on a regular basis, without having always to initiate the interactions. The venue provides a time for faculty to relax together and network in an informal atmosphere without making anyone feel overwhelmed or obligated. Because this event is held within a single department, a sense of belonging and cohesiveness is achieved. Organizing a given month's events increases interaction among the faculty, even across research fields, on the floor that is responsible. They are

highly motivated to take ownership of and continue the activity because they see immediate benefits in increased communication and community building. This is an ADVANCE-catalyzed social activity that has become self-sustaining.

#### Programs for Administrators

A number of institutions have successfully implemented leadership programs for department chairs and deans, including orientations for new department heads, leadership workshops, and informal monthly gatherings for women department chairs. They are often implemented top-down with buy-in and participation at the provost and dean levels, resulting in resource support and investment university-wide. Focusing on departmental challenges such as the professional development of new women faculty allows ADVANCE teams to connect with department and college leadership and convey to them the goals of ADVANCE. The participants appreciate the opportunities to interact with their peers and observe how other departments approach and resolve challenges common to all. These venues are excellent for cross-disciplinary networking.

Cost for many of these activities is incurred by providing food, which can be minimal for brief events. Most of these activities are organized and presented top-down, or very informally among the women chairs themselves, where the cost is simply a commitment from ADVANCE to get the ball rolling. Heavier personnel investment, such as that required by the workshops, is typically undertaken by upper administration personnel who organize and run the workshops.

Because academic experiences typically do not prepare faculty leaders for the issues they must confront as department heads, the New Department Head Orientation developed by AdvanceVT at Virginia Tech draws upon the knowledge of more experienced department heads. It builds a bridge between the administration and these new leaders, preparing them to fulfill their responsibilities as department chairs. Speakers at the orientation present on a variety of topics, and breakout sessions are held, focusing on personnel issues, promotion and tenure, conflict resolution, dealing with staff, and dealing with students. Gender equity issues are built into presentations on conflict resolution, effective communication, and other topics presented by different vice presidents and vice provosts. A reception with the president provides an excellent chance for those new to the university to meet the president and their

peers. The orientation program is very well received and is relatively low cost.

The University of Washington has developed Quarterly Leadership Workshops for department chairs. Department chairs are responsible for organizing and presenting the workshops. Assignments rotate among the departments, allowing for a fair distribution of the workload as well as the introduction of fresh perspectives. Topics discussed at these half-day workshops include equity, leadership, professional development, group mentoring and networking, hiring, and retention. About fifty participants—deans, chairs, and emerging faculty leaders—typically attend. This is an excellent example of an activity that allows for cross-disciplinary networking and learning, as peers come together to discuss common challenges on an ongoing basis. In addition, this program has been integrated into the Training and Development Office's Strategic Leadership Program for faculty throughout campus. Handouts and presentations from the leadership workshops are available online at <http://www.engr.washington.edu/advance/workshops/>.

An informal yet effective activity is the monthly brown-bag lunch for women department chairs organized by the University of Michigan ADVANCE program. The women chairs meet once per month to share experiences and advice. This lunch is low-cost and easily organized, yet it provides a low-stress, informal venue for community building and allows for cross-disciplinary discussion of issues in a sustained networking environment that continues from month to month. It could serve as a model for informal gatherings for other women leaders on campus, such as deans, provosts, and emerging faculty leaders.

#### Institution-Wide Efforts

One of the goals of ADVANCE is to review existing university policies and practices and, where necessary, to improve them. These institution-wide efforts can aid the entire university community by addressing issues concerning recruiting, hiring, retention, and promotion and tenure processes. Identifying forms of bias, expanding recruiting efforts outside of the traditional methods, modifying language, and promoting dual-career hiring are examples of successful ADVANCE efforts. In each case, support has been provided at the provost, dean, or department administration levels. As described earlier in this chapter, this level of support increases acceptance of changing practices throughout the institution.

Costs for these activities can be kept moderate, and in some cases, these interventions require no financial contribution. For example, an interactive, web-based tool designed to help faculty and administrators recognize and reduce bias in promotion and tenure, developed at Georgia Tech and described elsewhere in this book, can be downloaded from their web site for free. A significantly more expensive recruitment program at Virginia Tech incurs costs for hosting potential faculty candidates, but it also has significant potential to improve hiring and networking both for the individuals directly involved and for their broader research community.

Simply doing a review of policy can be symbolically important; it can also be practically important and low-cost. The University of Michigan ADVANCE team has noted negative influences language may have on community discourse and has taken steps to introduce more constructive phrasing. For example, switching from "two body problem" to "dual career program" and from "trailing spouse" to "partner" can have positive effects. Describing "time off the tenure clock" as "compensation for time lost to work" changes it from *extra* time to *compensatory* time. Equally, changing "spouse" to "partner" makes family-friendly policies more inclusive of unmarried partners. These simple shifts in language can change the way we think about these issues, thereby affecting community attitudes and contributing to institutional change at a fundamental level.

Further examples of practices that have been implemented campus-wide are Virginia Tech's brochure addressing sources of unrecognized bias and its dual-career hiring policy. The brochure addresses sources of unrecognized bias in the hiring process. Presentations using feedback from newly hired faculty and research into hiring bias have been developed and presented to search committees. A respected faculty member, rather than an administrator, makes the presentations, which is key to the success of this program. Search committees, like other faculty groups, are much more receptive to advice and guidance when it is presented by one of their peers rather than by administrators, though the higher administration must also support these efforts if they are to achieve the highest impact.

Because of its rural location, Virginia Tech traditionally has dealt extensively with dual-career hiring, a situation that has a disproportionate impact on women faculty. The importance of this topic came to light as a result of discussions at a university-wide workshop and within the AdvanceVT leadership team and policy work group. The Office of



the Provost codified what had been going on informally for years and researched how other universities handle this issue, with both informal and written policies. The provost's office then drafted a policy for Virginia Tech, with input from the faculty senate's Commission on Faculty Affairs, the administration, and department heads. The policy states that the university is committed to dealing with dual-career hiring and will work with candidates to find accommodation, but it does not guarantee positions to faculty partners. Interim funding for the dual hire is available in some cases from the Office of the Provost. The policy was presented to the university's Board of Visitors and has been posted on the provost's office web site. Representatives of AdvanceVT have met with department heads across the university to inform them of the policy. AdvanceVT is working with the personnel office and other resources across the university to provide increased assistance with dual-career hiring and has found that simply making the dual-hire policy information available to each faculty candidate early in the hiring process eases the discussion later on and speeds the resolution of the dual-hire scenario. This policy can reduce the negative impact on partners through a positive resolution supported by an institution-wide policy. Although women have been the most affected in the past, this policy improves the process for all new hires and should be viewed as a means to increase excellence in hiring for all departments.

The Potential Faculty Candidate Outreach, also developed by AdvanceVT, has yielded surprisingly positive outcomes. This program brings women graduate students, postdoctoral research fellows, and junior faculty to campus for seminars outside of the regular faculty search process. Even when there are no specific positions open at the time of these visits, departments want to develop relationships with young women who are potential faculty candidates. AdvanceVT cohosts the visits with individual departments, pays for their travel, introduces them to potential collaborators, hosts a lunch, and arranges for them to meet with graduate students so they can network and talk about their own experiences. Twelve potential candidates have been brought in for visits, two of whom were subsequently hired by Virginia Tech. These hires would not have happened without the intervention of the ADVANCE program. Continued practice of this outreach program will result in an extensive network of young women scientists and junior faculty, not just at Virginia Tech, but also at other institutions as relationships develop between the visitors and the Virginia Tech faculty and students. A similarly proactive program, described elsewhere in this

book, has been developed by the University of Puerto Rico–Humacao, which mentors promising undergraduate women through the graduate school application process in the hope that they will eventually return to join the faculty.

### Conclusions

This chapter highlights just a few of the low-cost programs implemented by ADVANCE institutions. These programs operate at every level, connecting faculty to faculty, supported by the university administrations, and steadily transforming university communities.

It is likely that there are informal advising relationships between senior and junior faculty at most institutions. By implementing formal advising relationships and workshops, as well as sponsoring venues for informal gatherings, ADVANCE can capitalize upon the experience and wisdom of those who have a natural talent for advising others. These faculty can teach others how to effectively advise and mentor, and reach a wider audience by participating in formal mentoring and workshop activities. More structured activities provide opportunities for staying on-task to tackle and solve difficult issues, while more informal activities provide a relaxed atmosphere. All are examples of institutional community-building that provide opportunities for expertise and knowledge dissemination across campus and venues for networking between faculty groups within and between departments.

By obtaining direct participation at upper administration levels, ADVANCE raises awareness of the confusion and misconceptions surrounding tenure and promotion among the faculty and catalyzes the administration to dispel myths and misinformation, thereby increasing transparency in the promotion process and improving advising. ADVANCE has been able to improve communication between university administrations and faculty in the pipeline, increase the visibility and accessibility of the resources these offices have to offer, and catalyze changes in university policies.

Whether conducted in formal, workshop settings or in informal brown-bag activities, programs focused on deans and department chairs have the net effect of transforming entire colleges and departments from the leadership on down, disseminating “best practices” across the campus while building leadership skills and reinforcing leadership communities. For institutional transformation to have the greatest long-term impact, activities directed at academic leaders must be sustained.

Institutional transformation can be further enhanced by addressing instances of bias and less-than-positive language. Although attitude and outlook often seem intractable and subjective, influencing them can result in genuine institutional transformation, especially with top-down administration support. These proactive examples, from language change to hosting potential faculty and building research community networks, cut to the heart of the attitude transformation that ADVANCE strives to promote.

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## Appendix

### ONLINE RESOURCES

ACES: Academic Careers in Engineering and Science

<http://www.case.edu/admin/aces/coaching.htm>

This web site provides information on the coaching program described by Bilimoria et al. in chapter 12, along with a coaching template for chairs and a coaching template for women faculty.

ADEPT: Awareness of Decisions in Evaluating Promotion and Tenure

<http://www.adept.gatech.edu/>

Developed and made available by the Georgia Institute of Technology, this downloadable application, described by Fox et al. in chapter 11, contains case studies and related activities appropriate for group discussion or individual use by candidates, members of committees, and other faculty. An extensive bibliography on bias in evaluation is also available.

ADVANCE Distinguished Lecture Series (ADLS)

[http://www.k-state.edu/advance/SeminarsEvents/distinguished\\_series.htm](http://www.k-state.edu/advance/SeminarsEvents/distinguished_series.htm)

This web site provides resources for and reports from the Kansas State University networking program described by Dyer and Montelone in chapter 4.

ADVANCE Portal

<http://www.advance-portal.net>

Links to research, programs, and announcements contributed by all nineteen ADVANCE institutions are available here, along with links to home pages of all ADVANCE IT awardees.