

AdvanceVT

External Evaluators' Report

Virginia Tech

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Executive Summary

Overview

The evaluators reviewed relevant program materials in preparation for a two-day visit on November 7-8, 2006. In addition, after the visit, follow-up phone interviews were conducted. All told, we interviewed:

- All members of the *AdvanceVT* Team (individually and twice as a group)
- 6 administrators (4 women, 2 men, 1 African American, 5 white), including:
 - university president
 - 1 vice president/dean
 - 3 associate deans
 - 1 center director.
- 16 faculty members (9 female, 7 male; 1 African American, 2 Asian, 13 white).

We spoke both with individuals who had central involvement or high levels of participation in *AdvanceVT*, as well as those who had not had formal involvement, to gain an understanding of the impact of *AdvanceVT* and to better recommend strategies to expand the program. The team did not interview faculty members outside of the science, technology, engineering and mathematics (STEM) fields. While these faculty are not covered by the grant, it is important that they benefit from the policy and climate changes as VT institutionalizes *AdvanceVT* gains. Engaging all faculty is key to insuring that the initiatives of the *AdvanceVT* program continue beyond the grant's funding period and is essential to achieving true institutional transformation.

This summary provides a synopsis of the evaluation team's findings about the *AdvanceVT* program's strengths, our concerns as the program enters its final two years, and our recommendations for making key programmatic improvements in order for the program to achieve its bold goals to:

1. Institutionalize change
2. Empower women as leaders and scholars
3. Increase the representation of women faculty in STEM
4. Advance women into faculty careers

Program Strengths

- Highly qualified staff and centrally located office.
- Strong and creative institutional leaders—specifically, the grant principal investigators (PIs) and administrators evidenced high level of commitment to *AdvanceVT* goals.
- Evidence gained from numerous comments that people felt *AdvanceVT* had raised awareness of gender bias and that this has “spilled over” to provide a way for more open dialog about diversity issues.
- *AdvanceVT* progress in all program areas.
- The departmental climate initiative holds forth promise for transformation.
- Implementation of high-quality social science strategies to study faculty lives at VT using both quantitative and qualitative approaches, which are both considered essential among leading social scientists.

- The Climate Study represents an important mechanism by which the *AdvanceVT* program can reach out to the broader VT community.

Concerns

Sustainability/institutionalization

- Where does *AdvanceVT* fit within the many institutional priorities as specified in the University Strategic Plan and the University Diversity Plan?
- Potential marginalization of *AdvanceVT* as a “women’s effort”.
- Policy change should be seen as a supporting factor in “institutional change” and not transformative in itself.
- True cultural change will necessitate the involvement of audiences that the *AdvanceVT* program has not yet effectively reached, most notably men, non-STEM faculty, and faculty of color (particularly women faculty of color).
- While policy changes have occurred there is limited attention to sustaining the Recruitment and Leadership Initiatives and no apparent plan to sustain the popular Pipeline Initiative after the NSF funding period.
- Program printed materials:
 - Were ineffective at reaching intended audiences.
 - Focused exclusively on women (e.g., had only pictures of women).

Assessment

- Assessment plan for 2006-07 is overly ambitious.
- Formative assessment for program activities is weak.

Climate Study

- Climate results are not sufficiently disaggregated (by age group or other cohort measure, rank, race/ethnicity, and discipline).
- Climate survey results are not effectively communicated to faculty and key administrators.

Attention to Diversity

- It is not apparent that an awareness of the complex issues for faculty of color has become a part of the campus dialog engendered by *AdvanceVT*.
- The program has not yet partnered with relevant diversity-related efforts (beyond the Women’s Center) such as the Black Caucus, Hispanic Caucus or the Vice President for Multicultural Affairs.
- Key *AdvanceVT* program personnel failed to discuss how the program has reached out to faculty of color.

Recommendations

Note: Detailed recommendations for each initiative are in the body of the report.

Sustainability/institutionalization

- Draft a sustainability/institutionalization plan for ALL program elements. This includes integration of program activities into University planning and identification of funding sources to support key initiatives beyond the grant period. (E.g., University

funds and/or grants from corporations, private foundations, or an award through either of the other two NSF Advance award programs¹.

- Seek funds to support faculty research in general and use these to leverage participation in program “learning opportunities” by men.
- Actively engage *AdvanceVT* office in outreach to department heads and faculty.
- Re-activate Advisory Board and use to reach out to important constituencies such as faculty of color, non-STEM faculty, etc. and/or liaise with core initiatives.

Assessment: General

- Specify a more detailed timeline for the assessment activities and reporting.
- Create template surveys and methods for gathering formative assessment metrics including better tracking of participation (disaggregated by rank, gender, race, department, etc.) and participant surveys.
- Rationalize the current plan and include delegation of assessment activities and logistics to the *AdvanceVT* program staff, as appropriate, to ensure that the timeline is met.

Assessment: Climate study

- Run more analysis with controls for: age group, time at institution (coded into categories) rank, race/ethnicity, discipline.
- Avoid presenting regression results, instead, code controls into appropriate categorical variables.
- Consider making appropriate comparisons between the *AdvanceVT* climate study and the climate study that pre-dated the grant. This provides a rare opportunity to show the VT community some longer-term trends than are not available at most Advance institutions.
- In future data collection, work with Black and Hispanic communities to gain better participation in surveys and to create effective ways to report results of relevance to faculty of color.
- Improve dissemination:
 - Identify the relevant VT technical staff who write and design public communications to provide this assistance.
 - Refer to the University of Wisconsin WISELI (ADVANCE) website for a reporting example. (<http://wiseli.engr.wisc.edu/initiatives/survey/results/facultypre/contents.htm>)
 - Refer to the Utah State University ADVANCE Program for an example of department-level reporting of climate results. (<http://websites.usu.edu/advance/FileManager/Download.asp?Parent=6305&FilePath=climate+survey+results+all+files.pdf>)

Attention to Diversity

- Determine the role of *AdvanceVT* in implementing the University Diversity Plan.
- Partner with the Black Caucus, Hispanic Caucus and the Vice President for Multicultural Affairs to identify significant issues for faculty of color across campus.

¹ These programs are: Partnerships for Adaptation, Implementation, and Dissemination (PAID) and Leadership.

Evaluation of *AdvanceVT* Program

Overview

The *AdvanceVT* staff were gracious in their hospitality. We appreciate their time and effort in answering our many requests for information before, during and after our visit to Blacksburg. The staff are highly skilled professionals deeply committed to gender equity.

The evaluators have a wealth of experience with ADVANCE: Institutional Transformation programs and with issues related to gender in science and engineering. These experiences, combined with the *AdvanceVT* site visit report enabled us to focus our evaluation research.

Trained in both industrial engineering and sociology, Lisa Frehill was the Principal Investigator and Program Director of a highly successful "first-round" Advance program at New Mexico State University. She held a supplement on her initial award with which she organized social scientists from Advance institutions to develop two toolkits to assist with data collection and reporting on the NSF-required indicators of women's status in STEM and on program evaluation. Between May 2005-July 2006 she served as the Program Director of the University of California at Irvine Advance program, where she was instrumental in increasing that institution's long-term financial commitment to the program. In addition, she has served on the advisory board for two other Advance programs: the University of Texas at El Paso and Utah State University. She was involved in three successful applications to the Advance: Partnerships for Adaptation, Implementation and Dissemination award program.

Barbara Bogue is former director of the Penn State Women in Engineering Program and in that role worked on recruitment, retention and career development programs for undergraduate and graduate students and faculty women. A social scientist, she helped design the College of Engineering climate survey and diversity strategic plans. She is co-PI for the multi-year NSF Assessing Women in Engineering Project, which has devised a range of assessment tools and capacity building strategies for engineering administrators and faculty. She was recognized with a Presidential Award for Excellence in Science, Mathematics and Engineering Mentoring (PAESMEM) in 2003 and is PI for a current PAESMEM faculty development initiative. She serves on the advisory board of the University of Delaware Women in Science and Engineering Initiative, the Leadership Committee for the Women in Engineering Programs and Advocates Network (WEPAN), and chairs the *ad hoc* committee to develop the WEPAN Knowledge Center.

Our comments are based on extensive pre-visit preparation, which included a face-to-face meeting of the evaluators, and two phone conversations involving the evaluators and the Program Director, Peggy Layne. The *AdvanceVT* Program provided us with:

- The NSF site visit binder, agenda, and list of visitors.
- Links to the *AdvanceVT* website, which was reviewed.
- Program publications.
- Internal event evaluations.
- Climate survey reports.

On campus and via post-visit phone calls, the evaluators interviewed:

- All members of the *AdvanceVT* Team (individually and twice as a group)
- 6 administrators (4 women, 2 men, 1 African American, 5 white), including:
 - university president
 - 1 vice president/dean
 - 3 associate deans
 - 1 center director.
- 16 faculty members (9 female, 7 male; 1 African American, 2 Asian, 13 white).

We spoke both with individuals who had central involvement or high levels of participation in *AdvanceVT* as well as those who had not had formal involvement. The evaluators specifically requested to speak with faculty in this latter group in order to better assist *AdvanceVT* with gauging overall impact and how best to expand the program. The team did not interview faculty members outside of the science, technology, engineering and mathematics (STEM) fields. While these faculty are not covered by the grant, it is important that they benefit from the policy and climate changes as VT institutionalizes *AdvanceVT* gains. Engaging all faculty is key to insuring that the initiatives of the *AdvanceVT* program continue beyond the grant's funding period and is essential to achieving true institutional transformation.

The *AdvanceVT* Program has four principal goals, which are linked to four important program initiatives:

1. Institutionalize change (**Policy Initiative**)
2. Empower women as leaders and scholars (**Leadership Initiative**)
3. Increase the representation of women faculty in STEM (**Recruitment Initiative**)
4. Advance women into faculty careers (**Pipeline Initiative**).

In addition, to these program initiatives, the institutional change sought by the NSF ADVANCE program necessitates two additional program activities:

5. **Assessment** and
6. **Sustainability/institutionalization.**

As a program designed to implement change among scientists and engineers, the program is grounded in a "fact-based," data-rich approach. As required by the National Science Foundation (NSF), the program collects and reports on a set of twelve indicators of women's status in STEM faculty at VT and has engaged in an array of important internal institutional research projects involving interviews and climate surveys. Although not listed as a separate initiative, assessment activities constitute a large-scale dedication of program resources and are essential to the long-term sustainability of the program.

In this report, we will review progress on each of the program elements and the assessment and sustainability plan for each of the four initiatives. We will conclude with additional remarks about the program's research activities and suggestions for how to expand the reach of the *AdvanceVT* program to insure its sustainability beyond the NSF funding period.

I. Policy Initiative

The Policy Initiative is, at present, the most established and integrated of the basic *AdvanceVT* initiatives. *AdvanceVT* has been successful in creating or augmenting family friendly policies, primarily in the areas of dual career hires and “stop the clock” policies. A third area, childcare is much talked about and, while *AdvanceVT* has been instrumental in focusing attention on the area, there is not much real progress evident in improving child care facilities or access at VT.

Faculty acceptance of new policies is not assured. It is important that faculty see the benefit in new policies rather than write them off as bureaucratic speed bumps imposed by the administration. If faculty perceive stop-the-clock and dual career hires as intrusions on their decision-making authority rather than as tools with which to improve the quality of work/life for faculty (and, thereby, improving recruitment and retention success), then faculty resistance to policy changes is likely to be manifested in subtle (and often covert) ways.

Stop-the-Clock

Prior to *AdvanceVT*, the University had a stop-the-clock policy in place but it was not commonly used. It is now easily available and mandatory with the result that there appears to be more usage. Long-term consequences associated with the use of the policy must be monitored, however, as other institutions have experienced problems associated with biased promotion and tenure evaluations as a result of a faculty member’s “use” of the “stop-the-clock” policy.

Dual Career

The dual career focus is new and resulted in establishment of a dual career office. The high usage reported and the key research conducted by Dr. Elizabeth Creamer indicates the need for this service.

Child Care

A needs assessment specific to child care was undertaken however there is no other real progress on this *AdvanceVT* goal. Many interviewees commented on the College of Engineering’s “reserving” of spots with a local daycare agency and that this had facilitated recruitment. This is a stopgap measure and clearly not adequate to the challenge of overall recruitment and *retention* of faculty. The daycare issue must be a higher priority and receive institutional support accordingly. Childcare is also an important issue for staff and students, two groups of potential allies. Without careful inclusion of these groups, staff and students may see the childcare issue as another faculty privilege rather than as an issue on which there is broad agreement about making it a University priority.

Assessment

- The necessary basic tracking databases for dual career and stop-the-clock policies are in place and appear to be institutionalized in the Provost’s office.
- A needs assessment for childcare was undertaken and has helped to emphasize the need for such facilities.

Sustainability/Institutionalization

- A dual career office has been established by the University but it is not clear how the office will be funded after the NSF funding period nor what the commitment to funding for dual career hires is beyond the grant period.
- The stop-the-clock policies are mandatory.
- The data collection for the dual career and stop-the-clock policy use is integrated into the Provost's office but it is not clear whether the tracking databases would be maintained without Dr. Patricia Hyer's oversight.
- We received reports of questions about the funding for dual career positions beyond the initial three-year commitment with implications that some positions were not sustained beyond that period.

Recommendations

- **Make daycare a top priority for the institution.**
- Clarify the University and departmental funding commitments (i.e., amount and duration) for dual career hires. The dual career program should be viewed as a retention tool, therefore, VT should determine whether the 2-year limitation on accessing services is efficacious for long-term faculty retention.
- Create a plan to institutionalize long-term support for positions created for dual hires. It is important to gain more financial commitment from departments up front. One model is to create more departmental buy-in is to require an initial and increasing cost share over the three year period from the departments with a fractional and continuing cost share from the University—creating ownership for departments and buy-in for development of continuing positions.
- Clarify how the dual career office, institutional research associated with policy use, and assessment of policy impact will be funded after the NSF award period.
- Expand the daycare initiative to include attention to the daycare needs of students and staff. (Which may provide additional leverage in seeking funding for daycare.)
- Establish and integrate reporting cycles of assessment for all policies. Engage key internal audiences with periodic reports and solicitations of feedback.

2. Leadership Initiative

The *AdvanceVT* Leadership Initiative involves several programs that have been retooled over the life of the grant as a result of formative feedback. A Fellowship Program originally designed as a shadowing program for women faculty to learn about administrative jobs was under-subscribed. Therefore, the program was changed into a coaching initiative. Such retooling is desirable when administering programs: it is important that programs are responsive to the needs of those they wish to serve. On the other hand, while mentoring was originally identified as a key activity, no specific mentoring activities are in place or planned. *AdvanceVT* needs to address the lack of a mentoring program, as was discussed in the NSF site visit report. Other *Advance* programs have developed a variety of mentoring program models, which can be referenced for possible replication at VT².

² The New Mexico State University mentoring program reaches over 100 faculty in STEM, more than half of whom are male faculty. The program has been institutionalized and is being

Faculty Coaching Program

The coaching program includes the development of professional plans and networks. Post assessment was undertaken for the most recent cohort and a pre-assessment instrument was added this year. Both were designed to measure ability of the initiative to reach stated objectives. Interviews are planned to provide qualitative data. Such interviews can be a key strategy in attracting external funds by putting a human face on the program's accomplishments. For example, Dr. Jennifer Sheridan conducted interviews of recipients of the lifecourse transition grants offered by the University of Wisconsin's WISELI (Advance) program. These interviews were key in the university's expansion of the program after successfully winning a sizable contribution from a private foundation.

While the coaching program is well designed, it serves a very small cohort (only five women will be served this year) with no plan for scaling it up to serve more faculty or for institutionalization. In its current iteration, this initiative is dependent on the efforts of one person. If this is a desirable program, then there needs to be a strategy for expanding the number of people reached. *AdvanceVT* and the administration need to develop an institutionalization plan for this program, perhaps supporting train-the-trainer workshops to help scale up the activity.

Department Head Training

Department head training has been developed and offered in all operating years of *AdvanceVT*. It is clear that this activity has been instrumental in creating more awareness and opened discussion about equity. Participation in the meetings is a concern. We learned that while no engineering departmental leadership attended the most recent offering, no effort was made to find out why or to follow up with additional training. Overall, it is unclear who benefits from the training. Unfortunately, the attendance is not broken down by rank or department so it is not clear who these trainings serve, what the departmental participation rate is or whether, in fact, department heads attend.

AdvanceVT emphasis on department head training and the new departmental climate initiative recognize the impact of a departmental culture upon individual faculty members, consistent with current research. The new *AdvanceVT* program initiative on department climate should identify specific strategies to "warm" department climates throughout the University for all faculty. It is important that this effort emphasize the notion that a "rising tide lifts all boats" rather than leaving departments with the impression that they have to change to accommodate women and faculty of color. That is, all faculty experience difficulties associated with lack of transparency and

replicated at other institutions. It features careful pairings with strong faculty input and group activities. The University of Texas at El Paso program is for women faculty only and is based on a group mentoring model. It has been very popular and appears to be effective for building a sense of community among the female faculty at that institution. University of Washington has long had a strong mentoring program as has the Women's Center at the University of Wisconsin. The Association for Women in Science (AWIS) has a publication titled: *A Hand Up For Women*, available from their website at <http://www.awis.org>, which can also be useful in establishing an effective mentoring program.

exclusion but those who have been historically marginalized like women, faculty of color and untenured faculty often bear a heavier share of these negative effects and often experience greater isolation.

Departmental Climate Initiative

The plan to implement department-level sessions in which disaggregated departmental results of the Climate Survey will be delivered to faculty along with identified good and poor practices and a goal of developing strategies for change can be an important mechanism by which *AdvanceVT* will have a longer-lasting impact upon the institution. In addition, in order for these initiatives to succeed in changing behavior, faculty need to see that they have played a role in crafting strategies to improve climate. As with the Policy Initiative, faculty may resist adopting practices that they perceive as having been “pushed” upon them by the administration. The Climate Committee and Provost have developed the initiatives with this principle in mind. Utah State University’s Advance program had a strong emphasis on departmental climate change: it would be useful to consult with that program’s Advance team.

Developing Women Leaders

Finally, the *AdvanceVT* program’s general goals concern women’s advancement in academia. It is important to make sure that women *Advance VT* leaders benefit individually; that they are not “penalized” for the extra time that participation requires; and that professional development opportunities beyond the institution are provided. Key members of the past and current *AdvanceVT* team have advanced to higher level administrative positions and this is an important metric of success. The options and goals of other members are not as clear. For example, a talented administrator who has established an excellent track record of accomplishment is on the leadership team. Her further advancement options at VT were not discussed or apparent to us, but we are aware of a variety of national-level academic leadership programs available to talented women administrators and faculty like her (see Appendix).

Assessment

- Retrospective post-program surveys are used for formative evaluation.
- Surveys include limited retrospective items to assess impact.

Sustainability

- Some leadership activities are being integrated into overall University leadership training activities.
- A university-level department climate committee has taken responsibility for working with departments and developing methods to assess progress in meeting equity goals.

Recommendations

- A more rigorous assessment is needed: for example, there is no comparison group for the leadership program assessment.
- Over-reliance on open-ended items can lead to higher rates of non-completion and lower overall response rates.
- Use more fixed-choice items in the surveys (with a limited number of open-ended questions).

- Use brief 5-10 minute follow-up interviews (by phone) at later dates to assess whether participants have adopted new behaviors as prescribed in programming.
- Disaggregate data reports and make them more concise.
- Plan follow-up workshops based on assessment results.
- Keep attendance/participation records to enable analysis of attendance by key demographic variables (including, gender, race/ethnicity, rank, discipline, marital status and parenting status) to determine each activity's ability to achieve stated objectives and breadth of reach.
- Identify and make use of national career development opportunities for women administrators and faculty

3. Recruitment Initiative

The *AdvanceVT* program has, like many other Advance programs, developed a brochure for search committees and engaged in outreach to search committees. Dr. Beate Schmitman, a well-respected faculty member (and new physics department head) made a number of presentations to faculty search committees, which were well-received by those faculty with whom we spoke. While the *AdvanceVT* program has raised individual awareness of issues such as unconscious bias it remains to be seen whether this increased awareness has resulted in changes in individuals' behaviors. It would be valuable to develop assessment tools to help measure this.

Additional resources, some by NSF-funded ADVANCE programs, are available:

- ADEPT Tool: interactive case studies in portfolio evaluation developed by the Georgia Tech ADVANCE Program. <http://www.adept.gatech.edu/download.htm>
- Rising above cognitive errors: guidelines for search, tenure review, and other evaluation committees. Moody (2005). <http://www.DiversityOnCampus.com>
- Self Assessment of biases: Implicit associations test (presented at the Advance PI meeting in 2005). <https://implicit.harvard.edu/implicit/demo/index.jsp>
- PowerPoint slides, including slides showing representations of underrepresented minorities, women, and Asians at various stages of STEM disciplinary pipelines are available at <http://diversefaculty.nmsu.edu>.

Assessment

- The Climate instrument has included some behavioral items, which may capture some change between the first and next iterations of the survey on a cross-sectional basis. Ideally, the ability to match surveys at each point in time to specific individuals would yield a stronger test of the hypothesis that the program made an impact on individuals' *behaviors*. As has been documented by social scientists, attitudes are not a good predictor of behavior. Instead, rewards and punishments are more highly correlated to behavioral change.
- There was no record of the number of presentations, audiences, and the number of non-duplicated faculty who had been reached by the presentations.

Sustainability/Institutionalization

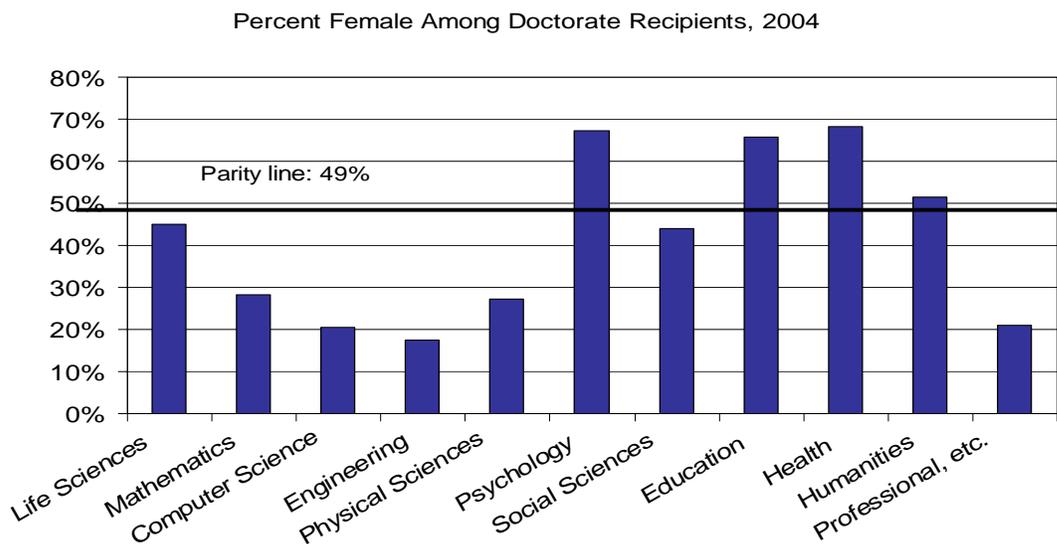
- Responsibility for continuing the recruitment effort has been placed with the Women's Center Director, Dr. Ellen Plummer.

Recommendations

- The current Director of the Women's Center is an advocate of gender equity and a skilled professional. However, faculty norms of self-governance mean that activities meant to involve or impact faculty need to be seen as "coming from" faculty. It will be important to ensure that the responsibility for meeting with search committees continues to involve senior faculty as presenters.
- Consider "certifying" faculty (and staff) to participate in search committees to provide an on-going mechanism for ensuring that faculty who are allowed the privilege of selecting new colleagues are attentive to diversity issues in hiring.

4. Pipeline Initiative

The pipeline piece of the VT program has been an essential mechanism to reach out to the engineering faculty, in particular, but to faculty women in general. The pipeline is a real issue in engineering and in some other areas of the physical sciences. This contrasts with the life and social sciences where women constitute a fairly good size of the pool of newly-minted doctoral recipients. This variance is often overlooked. Comparing institutional faculty with doctoral output data (i.e., national availability, see chart, below) is a valuable benchmarking tool.



Source: NSF Survey of Earned Doctorates, 2006. "Professional, etc." includes professional, unknown and other.

The graduate student and post-doc aspects of the Pipeline Initiative have been instrumental in providing a means of leveraging resources and of engaging faculty men who might not otherwise have participated in a "women's program." In interviews, faculty men expressed concerns about the lack of women and minorities in their field and agreed that it is essential to rectify this imbalance.

The seed grant and start-up funding programs are also important because they emphasize faculty members' scholarship. Women faculty may not universally be interested in leadership programs but programming that focuses on advancing research can have broader appeal given the centrality of an active research agenda for advancement for those in tenure-line positions. In addition, research engagements may serve as a potential "on-ramp"³ for women who are in non-tenure-track appointments and would like to return to being an active researcher.

Seed Grant Program

The seed grant program, which provides additional support for research activities, was characterized by interviewees as valuable for junior faculty development, who used funding to establish research programs. As important, funding was also used by mid-career faculty to move in new research directions. Such career changes are inevitable and institutional support for such changes supports retention and development activities in the short term and enhances faculty ability to tap into external funds for continued research in the long term.

Likewise, funds that support groups of researchers and enable cross-disciplinary cooperation are essential within the current funding environment. Faculty interviewees also placed the *AdvanceVT* seed program within a context of a perception of diminishing institutional resources for faculty research. In particular, faculty members felt that previous seed grant programs at the university level were either no longer available, had such minimal funds as to be not worth the effort to participate, or had become overly competitive for the young faculty who relied on these funds.

Star-Up Funding

There was not time to probe deeply the adequacy or equity of start-up funds but this matter should be investigated by the institution. Based on our experiences with a number of other institutions in the same competitive environment as VT, it is clear that start-up awards must, in general:

- Provide adequate financial support based on research needs in a new faculty member's field;
- Clearly articulate the dual career accommodation that will be made and the mechanism of support that will provide the partner with an appropriate long-term position.

AdvanceVT's 2006 annual report to NSF includes a brief discussion of start-up package differences. This would benefit from greater disaggregation of data. It is important to undertake a careful analysis of these packages that takes into account the different needs associated with each new faculty member's research agenda. Many *Advance* institutions have pooled several years' start-up data to permit such analyses. Many have broken the packages down into the constituent components (e.g., summer salary, graduate assistants, equipment, etc.) to determine whether these packages are equitable across gender (e.g., New Mexico State University and University of California

³ Hewlett, S. A. and C. B. Luce. 2005. "Off-Ramps and On-Ramps: Keeping Talented Women in the Road to Success" *Harvard Business Review*, March: 1-10.

at Irvine). The University of Michigan set up paired comparisons of men and women with similar research programs hired with similar backgrounds and at similar levels.

Assessment

- Seed grant participants provide reports.
- Workshops and events are evaluated in-house.
- We did not verify compliance with the NSF requirement that all research funded via the program carry an acknowledgment of NSF support.

Sustainability

- There are no apparent plans to sustain this part of the *AdvanceVT* program.

Recommendations

- Revamp in-house evaluation reports to make them shorter and create better collection and reporting platforms
- Add more fixed-choice items to in-house evaluation instruments in place of open-ended questions.
- Analyze seed grant participant reports to determine whether additional information is needed to understand the long-term impact of the funding.
- Follow up with participants each year to determine if “seed grants” bear later fruit and set up appropriate comparisons to non-participants.
- Replicate seed-grant reporting and analysis with recipients of start-up funding.
- Disaggregate start-up package components and make comparisons by gender within college of these components (i.e., type of research set up required, summer salary, years of credit towards tenure, equipment, graduate assistants, etc.).
- Revamp the newsletter to be more inclusive. The program newsletters promoted faculty women’s research accomplishments, but the men whom we interviewed had not read them. Photos and news of only women on the front page makes the newsletter seem irrelevant to people not actively engaged in *Advance VT*.
- Develop additional strategies for highlighting women’s research accomplishments to the VT community, including coordinating women’s nomination for internal and external awards (e.g., the American Society for Engineering Education and the American Society for the Advancement of Science, among others, have regular awards programs).
- Ensure compliance with the NSF requirement of the acknowledgement of research support by those who receive sub-awards. (An NSF acknowledgement and disclaimer and the grant number should appear on ALL publications and products of *AdvanceVT*.)
- Develop a sustainability plan:
 - Expand eligibility to male faculty to work with undergraduate, graduate and post-doc women.
 - Partner with NSF-funded “pipeline” efforts such as relevant Alliance for Minority Participation (AM)) and Alliance for Graduate Education and the Professoriate (AGEP) programs to increase participation by under represented minority students, especially women.
 - Seek additional funding.
 - Enable cross-disciplinary collaboration.

6. Program Assessment Activities

While the current assessment plan is broad and ambitious, the many program elements and research projects represent more work than any one person—even with research assistance—can complete.

Recommendations: General

- Add more detailed timeline (including delivery dates of component parts of assessment tasks, reporting, etc.) to the current assessment plan.
- Distribute the assessment work and weave it into the program more effectively in general—with the *AdvanceVT* office undertaking such activities as completing internal event evaluations using standardized templates, tracking seed reports, participation in program events, maintaining the assessment timeline, etc.
- Develop a regular internal report of assessment activities for the leadership team so that the range of the on-going assessment work is better understood.
- Extract relevant, formative information from the qualitative data and create regular reports. This serves the dual purpose of providing real-time formative information and making the value of qualitative data collection more apparent.
- Share responsibility for crafting reporting documents for campus dissemination between the *AdvanceVT* office and an office like University Communications, which is likely to have skilled technicians capable of drafting documents that people will read.

Reports by Dr. Judy Stepan-Norris⁴ of the University of California at Irvine *Advance* program provide useful assessment strategies for the VT ADVANCE program. For example, Dr. Stepan-Norris conducted a careful analysis of the impact of “best practices” for recruitment on the actual, desired outcome: the relative rate at which new women were hired by the institution. In the case of UCI, however, the recruitment efforts were very much localized with Equity Advisors, who served as faculty advisors to the dean in each of UCI’s ten schools. At VT, the effort has been more diffuse, which could present challenges in terms of assessment of the impact of the program’s efforts on recruitment.

Recommendations: Climate

Prior to the *AdvanceVT* program, VT completed a climate study in 1998. This provides *AdvanceVT* with an interesting opportunity to provide longer-term trend data about climate to the VT community. While the items in the earlier study may not be exactly like those in the 2005 survey, there may be several key items that are similar enough to measure progress and provide comparisons that would interest faculty.

Climate reports completed to date have carefully split the lengthy survey into smaller “pieces” for faculty to read. This is an effective strategy but needs improvement. The survey results were not widely known, or if they were known, the level of disaggregation was less-than-satisfying, according to those we interviewed.

⁴ Several relevant reports were sent to Margaret Layne on December 5, 2006.

We recommend several strategies to make the most of the climate survey data, especially as a means of generating interest in results and sustaining a high response rate:

- Delve deeper into the ways in which other factors besides gender impact faculty experiences and attitudes. For example, the length of time a faculty member has been at VT, their rank and tenure status, and whether they are in a position of being a “solo” in their department all simultaneously affect attitudes—all within the context of gender. In general, gender and science and engineering should always be broken out for graphs and reporting by AdvanceVT. It is easy to cloak disciplinary problems by not breaking down data by discipline⁵.

We do not recommend multivariate modeling to attempt to control for all of these factors, however, a judicious set of variables could be created that would both maintain the integrity of the data as well as protect respondents’ confidentiality. For example, while reporting by schools or colleges may not be feasible, it may be feasible to aggregate similar disciplines across units. Another strategy might be to create a new variable to code the relative percentage of women in a department and then to examine differences for each group. In this way, all individuals who are located in departments that are, say 30% or fewer women might be compared to those in which women account for greater than 30% of the faculty. (And if there are departments in which women constitute a majority, they would be assigned yet another code.)

Likewise, length of time at VT need not be maintained as a continuous variable; instead, faculty could be coded into several categories on this variable.

- Make appropriate comparisons between the *AdvanceVT* climate study and the earlier climate study that pre-dated the grant.
- Work with the minority communities to devise ways to improve participation in the survey and to report data.
- Present data more effectively. Past reporting formats are text heavy and unlikely to be read by faculty with busy schedules and full mail boxes. Make better and prominent use of graphs and “factlets.” Use campus technical communications experts to develop on-going information from the climate study—with detailed analyses as described above—to faculty. Many faculty to whom we spoke indicated that a print report was more likely to capture their attention (with electronic back up): links to websites or documents often became part of the snowstorm of email with which they dealt on a daily basis. Emails can be effective as follow up and if they are brief and “catchy”.

⁵ Broader discipline categories can be used to aggregate across departments to avoid revealing confidential information.

6. Overall Program: Recommendations for Expansion and Sustainability

The strong commitment to the program on the part of senior administrators and the *AdvanceVT* co-PIs is impressive. The goals are clearly and consistently articulated and there is clear evidence that *AdvanceVT* has set up an environment for open discussion on equity issues and an awareness of issues for women STEM faculty. Throughout the interview we heard numerous comments that people felt *AdvanceVT* did raise awareness of gender bias and that this has “spilled over” to create more open dialog about diversity issues in general.

As *AdvanceVT* completes its final two years of NSF funding, it is important that the PIs and program staff pay close attention to issues related to sustainability and institutionalization of the program. This focus is not currently apparent in interviews or print/web materials. It is imperative that the Leadership Team make arrangements to meet frequently in the coming months to address these issues. Such attention will be essential for a successful application for a “follow-on” award (much more modest in size) with the ADVANCE: PAID program, which may be available again within the next year.

The *AdvanceVT* program also benefits from a highly qualified support staff that has become more seasoned as the grant progressed. The institutionalization of these positions and inclusion in the Provost’s budget bodes well for the future of the program. However, like any program, this program office is susceptible to personnel changes as individuals’ careers develop and mature. Mechanisms for personnel succession are important: it is essential that the office continue to be staffed with a talented professional like Margaret Layne in order to be effective. In addition, we recommend that Ms. Layne be more proactive in reaching out to department heads and faculty. Given the grant has had a site visit and external evaluation and is entering its final two years, now is a moment of opportunity for Ms. Layne to meet with each department head, one-on-one, to share these findings and seek their ideas about the program.

AdvanceVT’s connection of the Provost’s office has enabled program implementation, but this connection could also pose inherent structural dangers, depending upon the incumbent Provost’s priorities. A new Provost with new priorities could as easily shift resources away from the effort or make it more difficult to challenge existing inequitable structures. Again, the *AdvanceVT* Leadership Team needs to be mindful of these possibilities as they craft a sustainability plan.

The attention the program paid to carefully overcoming earlier conflicts to effectively move the program forward is laudable. While the NSF site visit report was critical of the expenditure of funds for a consultant who assisted the program in moving beyond some early conflicts, we are of an opposite opinion: we believe that these funds were a wise investment in the program, an aid to better project management that enabled the program staff to collaborate more effectively in implementing ambitious program elements.

Finally, there are two key groups that the *AdvanceVT* program has yet to engage: faculty of color and non-tenure track women. Faculty of color have not been incorporated into the programming in a meaningful way. Although some faculty indicated that *AdvanceVT* opened a dialog, it was not clear that faculty understood the issues for African American and Hispanic faculty. The program has not yet partnered with relevant diversity-related efforts (beyond the Women's Center) such as the Black Caucus, Hispanic Caucus or the Vice President for Multicultural Affairs. Key *AdvanceVT* program personnel failed to discuss in a meaningful way how the program would deal with the long-standing, historical issues that make the role of faculty of color even more difficult within the context of VT. The program is perceived as a "white women's program." Programs that become labeled in this way have a tendency of being marginalized and can have difficulty in bringing about broader-level institutional transformation. For example, the only mention of the *AdvanceVT* program in the University Diversity Plan was as a "faculty women's program". Such a characterization, while it empowers some women, alienates others and can fail to provide a way for men to see how they fit in. In another example, the collection of photographs used by the program on its promotional materials includes only two (apparent) women of color and no men, even though the PI—who has prominence on campus—and some members of the Leadership Team are men.

Issues for non-tenure track faculty have not been addressed by the program. Non-tenure track faculty are often women who may be "trailing spouses" or primary family caretakers. In this latter case, some non-tenure track women have taken an "off-ramp" from a high-pressure tenure-track job (or avoided these positions altogether) in order to attend to family care⁶. In many cases, they are "trailing" spouses who may have chosen the non-tenure path because that was the only available choice. As with women in the business world, however, whatever the initial impetus, these women lack "on-ramps" back into meaningful and secure positions in the academy. Effectively engaging with this pool of talent may be a wise investment of resources.

Conclusion

AdvanceVT is at a pivotal point. During its first three years, the program has made great progress towards putting in place activities and policies that can achieve the goals of the original proposal and support institutional transformation. The overall commitment to those goals and the awareness of gender issues raised among constituents is impressive. However, progress on the many *AdvanceVT* activities has been uneven, with some initiatives well established (including appropriate evaluative mechanisms) and others lacking a clear future in the institution. Likewise, the assessment is very effective in some areas and not evident in others. It is important to plan for sustainability and institutionalization of initiatives, including consideration of how to integrate *AdvanceVT* gains into diversity goals and scale up programs for the ultimate benefit of all faculty. The final two years of the grant offer the challenge of building on the very real successes of the first three years, using them as a foundation to achieve true institutional transformation.

⁶ Hewlett, S. A. and C. B. Luce. 2005. "Off-Ramps and On-Ramps: Keeping Talented Women in the Road to Success" *Harvard Business Review*, March: 1-10.

Appendix. Leadership Development Programs

American Council on Education (<http://www.acenet.edu>):

- **ACE Fellows Program**

The [ACE Fellows Program](#) is the nation's premier higher education leadership development program. It identifies and prepares senior faculty and administrators to become skilled in the leadership of institutional change. It is the only national, individualized, long-term professional development program in higher education that provides on-the-job experience as well as a didactic component. More than 1,500 higher education leaders have participated in the ACE Fellows Program since its inception in 1965, with more than 300 Fellows having gone on to serve as chief executive officers of colleges or universities and more than 1,100 having served as provosts, vice presidents, and deans.

- **National Leadership Forums for the Advancement of Women Leaders**

The [Office of Women in Higher Education](#) has offered more than 65 [National Leadership Forums](#). Each Forum brings together college and university presidents to work with women who are ready to move into senior administrative positions or presidencies. The three-day event offers discussions of issues and challenges surrounding leadership in the academy and introduces participants to a number of search consultants who prepare them to engage in the search process.

- **Advancing to the Presidency: A workshop for Vice Presidents**

This new [workshop](#) for academic vice presidents provides an opportunity to individuals who will be seeking a presidency within the next year or two to gain valuable insight into the process of becoming a campus CEO. The two-day workshop focuses on presidential leadership, the CEO search process, contract negotiation, and successful transitions into the presidency. It is highly interactive, including candid conversations with search firm executives, coaching by current presidents from diverse institutions, feedback from mock interviews, and cover letter and CV/résumé critiques. Preparing to become a president requires a keen understanding of oneself and the search process, and a game plan for a successful search and the transition into the presidency.

AAAS Science & Technology Policy Fellowships (<http://www.aaas.org>)

NOTE: NEW application deadline for the 2007-08 AAAS Fellowships: 20 December 2006.
The [online application system](#) is now open.

The Fellowships help to establish and nurture critical links between federal decision-makers and scientific professionals to support public policy that benefits the wellbeing of the nation and the planet. The Fellowships are designed to:

- educate scientists and engineers on the intricacies of federal policymaking;
- provide scientific expertise and analysis to support decision-makers confronting increasingly complex scientific and technical issues;
- foster positive exchange between scientists and policymakers;

- empower scientists and engineers to conduct policy-relevant research that addresses challenges facing society; and
- increase the involvement and visibility of scientists and engineers in the public policy realm.

The Fellowships support the AAAS objectives to improve public policymaking through the infusion of science, and to increase public understanding of science and technology and are part of [AAAS Science & Policy Programs](#).

Women in Engineering Leadership Institute (WELI)

A two-day event, originally started by Iowa State University (and funded by the National Science Foundation's ADVANCE: Leadership Program). The event is now often run in conjunction with the annual Society of Women Engineers' National Conference, which is usually held in October or early November of the year.

<http://www.weli.eng.iastate.edu/>