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# ADVANCE

Nebraska Internal Evaluation Summative Report



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## Program Description

The National Science Foundation funded ADVANCE-Nebraska from September 2008 to August 2013 with a \$3.8 million grant. The grant aimed at 1) increasing the number of tenure-track and tenured Science, Technology, Engineering and Math (STEM) women faculty at the University of Nebraska-Lincoln (UNL), 2) increasing the retention of women STEM faculty at UNL and support their promotion into positions of leadership, and 3) conducting innovative research on network structures that best support the success of women STEM faculty.

When the grant was awarded, the PI was Dr. Barbara Couture, who was the Senior Vice Chancellor of Academic Affairs at the time. In 2009, Dr. Couture left UNL and Dr. Prem Paul, Vice Chancellor for Research and Economic Development, became the PI. Dr. Paul served as the PI while Dr. Ellen Weissinger served as interim Senior Vice Chancellor of Academic Affairs, but the role of PI was returned to the Office of the Senior Vice Chancellor of Academic Affairs (OSVCAA) in 2011 with the permanent hiring of Dr. Weissinger, who served as the PI for the remainder of the grant period. Dr. Mary Anne Holmes, Professor of Practice in Earth and Atmospheric Sciences, served as Project Director for the entire funding period.

Programming efforts identified 26 STEM departments to target, but rolled out efforts over time. ADVANCE-Nebraska targeted departments in the College of Arts and Sciences (A&S) and the College of Engineering (COE) during the first two years, and then added the Institute of Agriculture and Natural Resources (IANR) in year three. Programs and committee membership already included faculty from IANR, but their inclusion in 2011 provided resources for the dual career program to IANR as well as more targeted efforts in recruitment and best practices. While the original number of targeted departments was 26, the departments of Mechanical Engineering and Engineering Mechanics merged, and Industrial Management phased out during the funding period. Thus, at the end of ADVANCE-Nebraska, there were a total of 24 STEM departments, seven in A&S, eight in the COE and nine in the IANR.

## Purpose of Evaluation

ADVANCE-Nebraska utilized both an internal and external evaluation approach to fully assess the impact of its efforts. Nancy Busch and Mindy Anderson-Knott led the internal evaluation, with Trish Wonch Hill added as a postdoctoral researcher in year 4. The evaluation team worked in coordination with ADVANCE-Nebraska leadership through monthly meetings occurring during the duration of the grant, which provided frequent interaction to provide formative feedback guiding future programming. This collaborative model was also exercised with the external evaluator, Dr. Ann E. Austin, Professor of Higher, Adult, and Lifelong Education at Michigan State University. Dr. Austin visited UNL several times during the funding period to meet with the evaluation team, ADVANCE-Nebraska leadership, and other various leaders across campus to provide formative insight. In addition, she visited in March 2013 for a summative program evaluation, where she met with ADVANCE-Nebraska leaders, UNL administrators, the ADVANCE faculty committee, dual career supported faculty, and STEM women faculty.

ADVANCE-Nebraska leadership and the evaluation team (internal and external) worked in tandem to create a theory of change and a logic model to summarize the mechanisms for change intended to lead to the intended outcomes (Appendix A). The internal evaluation team designed numerous studies to provide

formative feedback to guide programming, as well as to measure the impact on the stated aims and the intended outcomes defined in the logic model:

1. Increase the percent of STEM women in UNL tenure, tenure-track applicant pools to match or exceed that of the national PhD pool
2. Increase the percent of STEM women hired in tenure, tenure-track positions at UNL to match or exceed that of the national level
3. Ensure no gender difference in proportion of exiting faculty
4. Increase the number of UNL STEM women promoted in rank
5. Increase the number of UNL STEM women in leadership positions
6. Increase scientific knowledge of network connections in STEM departments

## Evaluation Methods

Over the course of the five years, the ADVANCE-Nebraska evaluation team collected both quantitative and qualitative data by conducting interviews, focus groups, and surveys, as well as analyzed institutional data. Evaluation data was typically collected from a census of all STEM faculty; therefore, in most cases, significance testing was not utilized. The following describes the specific methods employed.

### *Search Chair Focus Groups*

To discover similarities and differences in how faculty searches were conducted and to ascertain if there was room for changes that could enhance hiring more women, the evaluation team worked with the Bureau of Sociological Research (BOSR) to conduct focus groups with UNL search committee chairs from the 2008-09 academic year. Of 51 faculty members who served as search chairs through February 2009, 12 participated in three focus groups conducted by BOSR personnel in April 2009. Across the three focus groups was representation from STEM and non-STEM men and women who had served as search chairs.

### *Search Surveys*

To measure change in faculty search practices, search committee chairs and department chairs were surveyed both cross-sectionally and longitudinally over the five years of the grant. The survey asked about types of recruitment activities used in searches, as well as perceptions of the applicant pools. Chairs were first surveyed as part of pre- and post-event analysis for the 'Recruit and Retain Series' during the fall of 2009 (13 STEM faculty participated, primarily department chairs). In the spring of 2010, current searches were identified and corresponding search chairs and department chairs were administered a mail survey, of which 5 department chairs (45% response rate) and 16 search committee chairs (70% response rate) completed the survey. During the final year of ADVANCE-Nebraska, the evaluation team conducted two more surveys of department chairs and search committee chairs with active searches (one in the fall and one in the spring). In October 2012, 17 department chairs (71% response rate) and 6 search chairs (50% response rate) completed the fall survey. These same respondents, as well as any new search chairs added after October 2012, were sent another survey in April 2013. The spring survey yielded surveys from 18 search chairs (60% response rate) and 14 department chairs (54% response rate). The purpose of the longitudinal design was to assess changes in attitudes, beliefs or behaviors in recruitment strategies between previous searches and the search conducted in 2012-2013. Approximately 50% of those who participated in 2012 also completed the survey in 2013.

### *Institutional Records and CIC Peer Comparison*

Institutional records were obtained from the UNL Office of Institutional Research and Planning (IRP) to measure change in the representation of women in STEM departments. In addition to providing the gender

composition of faculty in STEM departments, the IRP office provided demographic and salary information to assist the evaluation in a salary study and providing sampling frames for other data collection efforts. In addition to obtaining institutional data from IRP, UNL's Office of Human Resources provided the number of self-reported male and female applicants for all tenure-track STEM faculty positions. Applicant pool data were obtained beginning in 2005 (when this data was first tracked in the existing PeopleAdmin system), and were continued until 2013. The OSVCAA and IANR also provided information on tenure and promotion decisions.

Additionally, the IRP office provided data from peers that belong to the Committee on Institutional Cooperation (CIC). CIC peer comparison data, representing institutions in the Big Ten, was gathered beginning in year 4 in response to requests from STEM department chairs for peer comparison data. Because some departments do not match across institutions, while others overlap with multiple departments, peer departments were classified through an iterative process via UNL administrators and through feedback from department chairs to ensure accurate comparisons. The proportion of tenured and tenure-track women faculty in each peer department were calculated, and then averaged with peer departments across all five institutions, or for as many CIC institutions with peer departments available.<sup>1</sup>

### *Involvement Matrix*

Over the course of the five years of ADVANCE-Nebraska, data was collected on faculty involvement in all ADVANCE-Nebraska events, leadership roles (PI's and Co-PI's, Internal Advisory Board and Faculty Committee) and utilization of ADVANCE resources (Showcase Visitors, Recruitment Ambassadors, Dual Career). Data were collected at the individual level and then aggregated to the department level. Departmental level involvement was then calculated by averaging individual participation by department and by calculating the proportion of a departments' faculty participating.

### *Dual Career*

The ADVANCE-Nebraska project coordinator tracked the process and implementation of the dual career program, including detailed records of contacts made with potential dual career hires. This information was used by the evaluation team to measure how frequently the program was used and how many hires were made as a result. In addition, general attitudes toward and use of the dual career program were collected in the Search Surveys and Climate Surveys.

### *Network and Climate Survey*

To assess changes in perceptions of climate over time, STEM faculty were administered a survey at three time points. The Climate Survey was fielded in tandem with the Network Survey in the spring semesters of 2008, 2011, and 2013. A variety of questions were asked to create indices for family supportiveness in the

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<sup>1</sup> The five institutions in this analysis are: University of Minnesota, Michigan State University, University of Illinois–UC, University of Indiana – Bloomington, and University of Iowa. Institutions were excluded from analysis if they did not have consistent institutional data available for both time, or if they were a private institution. Finally, some institutions did not have comparable peer departments in all five institutions; nine of the 24 STEM departments had peer departments in all five institutions, five had peer departments in four institutions (Chemical & Biomolecular Engineering, Civil Engineering, Computer & Electronics Engineering, Mechanical and Materials Engineering & Biological Systems Engineering), four had peer departments in three institutions (Agronomy & Horticulture, Animal Science, Food Science & Technology & Veterinary and Biomedical Sciences) and three had peer departments in only two institutions (Computer & Electronics Engineering, Entomology & Plant Pathology). In addition, three UNL departments have no identified comparable departments in these peer institutions (Architectural Engineering, Construction Systems & Construction Management), thus comparisons are not provided.

department, work satisfaction, and clarity of tenure and promotion process, as well as other individual measures to assess perceptions of climate. In 2008 the BOSR administered a pilot survey (the Survey on Promoting Success among Faculty) to all faculty in STEM departments at UNL, with resulted in completed surveys from 272 faculty (60% response rate). The Faculty Network and Workload Study (FNWS), conducted by the BOSR in March 2011, added a comparison group of non-STEM faculty. Faculty with a tenure-line in 26 STEM and 16 Social and Behavioral Sciences departments were asked to participate in the survey, which attained a 75% individual level response rate (559 faculty participated). The survey utilized a mixed mode survey design, where faculty could complete the survey on the web or on paper via mail. In the spring of 2013, the second wave of the FNWS was administered using methods similar to that of the 2011 administration, which resulted in a 63% response rate (479 faculty participated).

### ***Associate and Full Professor Interviews***

Dr. Dana Britton, Professor of Sociology at Kansas State University, included UNL in her NSF-ADVANCE-PAID grant (“PROMOTE – Improving the promotion to full processes at Western public universities”, Award #: HRD-0820273) to interview faculty nationwide on the process of promotion to full professor. Interviews were conducted in Spring 2010 by Dr. Britton with 14 UNL associate and full professors (8 women and 6 men) about their tenure and promotion experiences and their satisfaction with their academic career at UNL.

### ***Exit Surveys***

Rice University conducted a nationwide exit survey that included tenure and tenure-track faculty who voluntarily left UNL between 2003 and 2008. In the spring of 2009, 40 former UNL faculty completed the survey (32% response rate). Of the 40 respondents, 17 were women, 22 were men, and one respondent did not indicate his/her gender. In addition to participating in the Rice project, the ADVANCE-Nebraska evaluation team conducted a mail exit survey of all tenure and tenure-track faculty that left UNL between July 2008 and April 2009, and their corresponding department chairs. In total, 55% of former faculty members (11 out of 20) and 90% of department chairs (18 out of 20) completed a survey. Of the former faculty that responded, most were men (8), and only two were from STEM departments (both were male).

### ***New Hire Interviews***

Twenty-seven new UNL hires were interviewed by telephone in the spring and fall of 2010 about the job search and hiring process. Spring interviews were conducted only with STEM dual career hires (N=3), while fall interviews were conducted with all STEM new hires (N=24). Of the 27 respondents, 6 were dual career hires. The response rate for both male (N=18) and female (N=9) respondents was 90%.

### ***Senior Women Focus Groups***

In the fall of 2012, the ADVANCE-Nebraska evaluation team conducted three focus groups with UNL STEM associate and full professor women, in response to findings from the 2011 climate survey that showed different patterns in department and institution satisfaction by rank and gender. Each focus group included 6-8 women, with a total of 21 women participating. A broad range of questions were asked, including questions about the tenure and promotion process, job satisfaction, retention, and the impact of spousal employment. Faculty were also asked to discuss policies they thought would be useful in recruiting and retaining tenure-track STEM women faculty at UNL.

## Programmatic Activity/Outputs

### Recruitment

A number of activities were employed at UNL aimed at improving recruitment efforts to increase the number of STEM faculty at UNL during the five years of ADVANCE-Nebraska funding. These activities included a variety of preplanned efforts that were consistent throughout the grant, as well as some programs that were eliminated due to lack of interest, and some new efforts that were created in response to needs identified during the course of the grant. The following outlines each recruitment-focused activity and its outputs.

#### Showcase Visitors

Showcase Visits were intended for departments to bring in potential job applicants for faculty positions in STEM departments. Five Showcase Visits were funded by ADVANCE-Nebraska over the first four years of the grant, requested by the following departments: Chemistry (hosted 3 visitors), Biological Systems Engineering, and School of Biological Sciences. While the visitors were on campus, they typically gave a presentation and met with faculty, post-docs, graduate students, and others. As this program was under-prescribed by departments, it was discontinued in year five and funds were redeployed to the dual career program.

#### Department Diversity Grants

The goal of this program was to provide funds to departments to try innovative ideas to increase the number of women in applicant pools. Department diversity grants were advertised through the ADVANCE-Nebraska website, promotional materials, and in the Department and Search Committee visits. No applications were submitted for these grants over the life of the grant. Funds were redistributed to pay for the focus group study of search committee chairs and the dual career program.

#### Recruitment Ambassadors

Recruitment Ambassadors were envisioned to help improve recruitment of women to applicant pools by supporting faculty to attend conferences in order to talk to promising women graduate students and post-docs to encourage them to consider UNL as a place to work. While no applications were submitted during the first two years of the grant, seven recruitment ambassadors were funded in years 3-4 of the grant from the following departments: Earth & Atmospheric Sciences (1), Civil Engineering (5), and Biological Systems Engineering (1). As this program was under-prescribed by departments, it was discontinued in year five and funds were devoted to the dual career program.

#### Search Committee Visits

Search Committee visits were first conducted in the fall of 2010 to disseminate the Recruit Committee's Best Practices for Recruitment document, data on the applicant pool in that discipline, sample letters to potential applicants inviting them to apply to UNL, and to listen to concerns and offer help. Project Director Mary Anne Holmes, Associate Vice Chancellor for Faculty Scholarship Evelyn Jacobson, and/or Associate Vice Chancellor for IANR and Interim Dean of the Agricultural Research Division Susan Fritz met with 9 search committees, which covered all 15 STEM searches for 2010-11 plus one non-STEM search (requested by the chair). Most meetings included the department chair and/or the search committee chair, with one meeting including the interim dean regarding their dual career and search situation. In addition, two search committee chair visits were conducted during fall 2011 with Mathematics and IANR.



### Recruitment-Focused Events

Eight events focused on recruitment were held over the five years of the ADVANCE-Nebraska grant period. The events were: 1) Implicit Bias (11/19/2009), 2) Best Practices for recruiting a Diverse Faculty (9/29/10), 3) Pitfalls and Promise of Candidate Evaluation (10/15/10), 4) On-campus Interviews (10/20/10), 5) Interrupting Bias in the Faculty Search Process (9/16/11), 6) Recruitment Strategies/Best Practices (10/11/12), 7) Search Committee Best Practices (3/14/13), and 8) COE Best Practices (3/15/13). Detailed information about each event, as well as formative participant feedback, is provided in Appendix B.

An average of 23 people attended each event, and of those, approximately 10 were tenured and tenure-track faculty in STEM departments, while the rest were non-tenure track faculty and/or non-STEM, including postdocs, graduate and undergraduate students and lecturers. Overall, 20% of all STEM women faculty and 8% of STEM men faculty attended at least one of these eight recruitment events across the five years. While the representation of STEM women at these events was fairly low, they were not the target audience for these events, which were typically targeted toward department leaders involved in recruitment of new faculty. **Overall, most (19 of 24) of the targeted STEM departments had representation at these events**, with only 5 departments (Architectural Engineering, Chemical and Biomeolecular Engineering, Construction Systems, Construction Management and Plant Pathology) not attending any recruitment-focused events. Of the 24 STEM departments, ten had over 10% of their department attend at least one event. The three departments with the highest proportion of attendants were Chemistry (26%), Biochemistry (25%) and Mathematics (21%).

Participant feedback suggests that material covered at the events was useful. The means in Table 1 show there was little variation between events, with all events showing strong agreement (1=strongly disagree to 5=strongly agree).

Table 1. Mean Agreement among Recruitment-Focused Event Participants

	The material covered in this workshop was useful for me.
Best Practices for Recruiting a Diverse Faculty, DiRusso 9/29/10 (n=9)	4.6
Pitfalls and Promise of Candidate Evaluation, Joyce Yen 10/15/2010 (n=13)	4.5
On-campus Interviews 10/20/10 (n=12)	4.5
Interrupting Bias in the Faculty Search Process 9/16/11 (n=15)	4.7
Recruitment Strategies/Best Practices 10/11/12 (n=21)	4.2
Search Committee Best Practices 3/14/13 (n=12)	4.4

*Note: Implicit Bias and COE Best Practices events not included due to small n's*

### New Wording on Faculty Job Advertisements

In September 2008, new wording was added to all faculty job advertisements to announce that UNL is now an ADVANCE institution: "The University of Nebraska has an active National Science Foundation ADVANCE gender equity program, and is committed to a pluralistic campus community through affirmative action, equal opportunity, work-life balance, and dual careers." This addition to job advertisements helped raise awareness on and off campus of the existence and intent of the project.

## HERC Explorations

HERC is a Higher Education Recruitment Consortium that allows academic dual career couples to find positions in the same geographic area. ADVANCE-Nebraska provided support for the exploratory stages of establishing a HERC in year one. Communication with other academic institutions in the region began to discuss methods to address the mutual challenges of dual career opportunities, but sufficient interest was not sustained to continue HERC efforts.

## Meetings with Short List Candidates

In year three, Dr. Holmes met with several short-list candidates to discuss the ADVANCE program and UNL family leave/tenure interruption policies in an effort to increase feelings of comfort in understanding and asking for tenure interruptions. The Chemistry department requested Holmes to meet with two women candidates; an offer went to both women, but unfortunately, they took offers elsewhere. Holmes also met with two of six short-list candidates for two tenure-track Science Education positions. Of these two, one received and accepted an offer in the Chemistry department. In addition, Holmes met with seven candidates for two positions in Earth & Atmospheric Sciences.

## Retention

To address ADVANCE-Nebraska's aim of improving the retention of STEM women at UNL and supporting their promotion into positions of leadership, numerous retention-focused professional development events were hosted to increase the likelihood of success for STEM women. In addition to sponsoring events, the ADVANCE-Nebraska office created and disseminated various materials in an effort to retain STEM women at UNL. The following outlines each recruitment-focused activity and its outputs.

### Retention-Focused Events

Twenty-nine events focused on retention were held over the five years of the grant. Detailed information about each event is provided in Appendix B. Feedback from the events was overwhelmingly positive; over 93% of participants either agreed or strongly agreed that the content would help their careers, while over 95% said it was useful and valuable.

An average of 31 people attended each retention-focused event and of those, approximately 14 were tenured and tenure-track faculty in STEM departments, while the rest were non-tenure track faculty and/or non-STEM. The smallest number of attendees at a retention-focused event was 15 (Conversation Series 3/31/11) and the largest was 61 (Vidaver 12/08). Overall, approximately 24% of all STEM tenured and tenure-track faculty at UNL attended at least one of these 29 retention-focused events. STEM faculty, especially women, were most often the targeted audience for these events. **Attendance from STEM women was strong with 62% of all UNL STEM women faculty attending at least one event.**

Additionally, 18% of STEM men faculty were represented at a retention-focused event across the five years. Attendance showed that often there were multiple members within a department attending events, and that it was not just one champion attending. Of the 24 STEM departments, half (12) had over 25% of their tenured and tenure track faculty attend at least one of the retention-focused events. Participation in A&S was strongest, with Chemistry (46%) and Statistics (47%) leading in the proportion of participating faculty, but the departments with the highest rates outside of that college were Biochemistry (35%) in IANR and Civil Engineering (33%) in COE.

Table 2 shows the mean perception of the usefulness of the material covered at each event (1=strongly disagree to 5=strongly agree). Overall, all events showed general agreement that the material was useful, with the three COACh events being reported as most useful ( $\bar{x}$ =4.9 in 2009 and 2010,  $\bar{x}$ =4.8 in 2011).

Table 2. Mean Agreement among Retention-Focused Event Participants

	The material covered in this workshop was useful for me.
COACh 3/2/09 (n=15)	4.9
Walking the Career-Family Tightrope, Espy 3/12/09 (n=31)	4.5
No daughter of mine is going to Caltech, Schellman 4/29/09 (n=26)	4.2
Meeting With a Purpose, Bonnie Coffey, 8/28/09 (n=23)	4.7
The Seven Career Life: A Geological Perspective, Grew 9/16/09 (n=38)	4.2
Connecting at Conventions, Bonnie Coffey 1/22/10 (n=17)	4.4
The Importance of Determining What's Important, Judy Walker 2/11/10 (n=19)	4.4
Perceptions of Climate, Falci and McQuillan 2/22/10 (n=21)	3.9
Climate Part II, McQuillan 4/19/10 (n=5)	4.2
How Useless Information is Always Useful, Someday, Allison McKay 4/22/10 (n=18)	4.3
COACh 2010 (n=27)	4.9
Starting Up and Managing a Research Lab 9/22/10 (n=21)	4.4
Nominating Colleagues for National Awards 11/17/10 (n=12)	4.4
Sustaining a Consistent Stream of Research Publications 12/8/10 (n=23)	4.5
Teaching to Attract and Retain STEM Majors 1/13/11 (n=21)	4.5
Teaching Challenges and Solutions 1/26/11 (n=14)	4.8
Opportunities to Become a Campus Leader 2/10/11 (n=12)	4.4
COACh 2011 (n=20)	4.8
Now I Have Tenure, What Next? 3/31/11 (n=10)	4.3
Conversations 2.0 9/8/11 (n=20)	4.3
Don't Ask, Don't Get 1/20/12 (n=29)	4.7
Sorcinelli 3/7/12 (n=15)	4.5
How to Set up and Manage a Lab/Roadmap to Success 9/19/12 (n=14)	4.4
Dr. Wu 10/19/12 (n=22)	4.3
Highlights from the 2011 FNWS 11/2/12 (n=29)	4.3
Research-Based Practices for Evaluating and Retaining New STEM Faculty, Helen Moore 1/23/13 (n=28)	4.5
Rockquemore- Writing Your Next Chapter: Midcareer 5/7/13 (n=25)	4.4
Rockquemore- Getting What You Need: Junior Faculty 5/7/13	4.8

Note: Vidaver event not included due to measurement differences.

### Writing Retreats

Five ADVANCE-Nebraska Writing Retreats were held from 2009-2013. The structure of the retreat varied slightly over time, but was consistently held during the summer over the course of a week at a university library. Participants were provided lunches and refreshments, and were encouraged to attend full days the entire week. All retreats included some formal training/coaching on writing skills, as well as substantial portions of time for unstructured writing time. Attendance increased over time, with only 9 people attending the first retreat in August 2009, and 24 attending the last retreat in May 2013 (the highest attendance was 37 at the May 2012 writing retreat). Table 3 shows the means by year for reports of usefulness of the material covered (1=strongly disagree to 5=strongly agree). Participants mostly agreed that the material was useful, with strongest agreement in year one ( $\bar{x}$ =4.7) and the least agreement in year two ( $\bar{x}$ =3.8). In addition, data was available in the first two years showing perceptions of value for time spent networking, which showed that participants agreed more than disagreed that it was valuable ( $\bar{x}$ =4.3 in year one, and  $\bar{x}$ =3.5 in year two).

Table 3. Mean Agreement among Writing Retreat Participants

	The material covered in this workshop was useful for me.	Time spent networking with colleagues during this workshop was valuable.
Y1 Writing Retreat 2009 (N=7)	4.7	4.3
Y2 Writing Retreat 2010 (N=12)	3.8	3.5
Y3 Writing Retreat 2011 (N=3)	3.7	
Y4 Writing Retreat 2012 (N=21)	4.2	
Y5 Writing Retreat 2013 (N=12)	4.6	

### Big Ten Writing Retreat

In June 2012, UNL hosted an additional writing retreat for STEM faculty funded by the Elsevier Foundation New Scholars Program. Twenty-one faculty members from five Big Ten (CIC) institutions (including UNL) and five additional institutions attended (8 of the attendees were UNL faculty). Faculty who attended were from all ranks and included a broad range of STEM fields. One of the innovative aspects of this retreat was collaboration with Lincoln Children's Museum, which allowed STEM faculty to bring their children for a science themed day camp during the retreat (childcare for younger children was also provided). In total, twelve children participated, with a broad age range spanning from two months to nine years old.

### Enews

A bi-monthly newsletter, ADVANCE-Nebraska E-news, was started in September 2008 for all STEM faculty and staff. The newsletter posted new announcements, programs, and relevant articles for all faculty in STEM. At least a dozen different people on campus, and about half a dozen off campus, provided articles that were featured. E-News was originally released one-two times per month, but increased to a weekly distribution, and was also published on the ADVANCE-Nebraska website. Several on-campus and off-campus people and organizations were part of the listserv and served as liaisons with various constituencies on and off campus. Events that would be of mutual interest, particularly professional development opportunities, were communicated via E-News. By the end of the funding period, the ADVANCE-Nebraska Listserv receiving the weekly E-News included 530 members composed of UNL, University of Nebraska-Omaha, University of Nebraska Medical Center and University of Nebraska-Kearney STEM faculty and administrators.

### **ADVANCE-Nebraska Website**

The University Libraries provided technical and staff support to host the ADVANCE-Nebraska website. The website went live on October 1, 2008 at [advance.unl.edu](http://advance.unl.edu). The website served several important functions including serving as a communication tool, a record of project activities and accomplishments, and link to related resources. The website averaged about 58 visits per week, with an average of four minutes per visit. Forty percent of visits were direct traffic visitors, 38% were from referring sites, and 22% were from search engines. Monthly website meetings were held to review content and functionality.

### **Dissemination of UNL Work-Life Balance Policies**

Over the grant period, the ADVANCE-Nebraska office educated faculty from STEM and non-STEM departments about UNL's work-life balance policies and how to implement them. During the first year of the grant, ADVANCE-Nebraska worked with the Office of the Senior Vice Chancellor for Academic Affairs (OSVCAA) to more clearly communicate existing work-life balance policies. The clarified policies were posted on the UNL Office of Academic Affairs Work-Life Balance Policies and Resources web page (formerly "Family-Friendly Policies and Resources") at [http://www.unl.edu/svcaa/faculty/policies/work\\_life\\_balance.shtml](http://www.unl.edu/svcaa/faculty/policies/work_life_balance.shtml). A link to the policies was also posted on the ADVANCE-Nebraska website. In 2009 a tri-color brochure of the policies from this website ([http://www.unl.edu/svcaa/faculty/policies/work\\_life\\_integration.shtml](http://www.unl.edu/svcaa/faculty/policies/work_life_integration.shtml)) was created and copies were printed. Brochures were distributed at most ADVANCE-Nebraska events, at the New Faculty Orientation provided by Academic Affairs at the beginning of the year, at Department and Search Committee visits, to the Chancellor's Commission on the Status of Women, and to short-list candidates.

### **New STEM Women Faculty Gatherings**

In year two, an informal get-together was held for new women STEM hires immediately following their Academic Affairs-hosted orientation session. They were provided with the Work-Life Integration brochure and ADVANCE-Nebraska contact and program information. In year four, a breakfast was held for all six new STEM women faculty who joined UNL that fall. Co-PIs Julia McQuillan and Mary Anne Holmes, along with the external evaluator, Ann Austin, who was visiting at the time, met with the faculty to welcome them to campus and town and to tell them about ADVANCE-Nebraska. They were provided with information on Lincoln, Work-Life Balance policies at UNL, and the ADVANCE program. Several recent hires from the previous two years also attended to share their experiences as new faculty on the UNL campus.

### **Informal Networking Opportunities**

Two informal networking gatherings were held in 2010-2011. The first was a reception for all UNL STEM women faculty, held in November 2010 in Morrill Hall on the UNL city campus. Dr. Prem Paul, PI at the time, opened the reception with welcoming remarks. Thirty-five people attended, representing faculty from each of the target colleges. It was an opportunity for STEM women faculty to meet the ADVANCE co-PIs, and also to interact with one another in an informal social setting for professional networking and collaboration. The second event was held April 2011 for women full professors in STEM disciplines. The luncheon, attended by 15 women (only 4 were invited that did not attend), was suggested and hosted by members of the ADVANCE Faculty Committee, and was meant as a first step in fostering an on-going collegial community among senior STEM women at UNL.

## Recruitment and Retention

In addition to efforts focused solely on recruitment or retention, ADVANCE-Nebraska pursued several other efforts designed to address both recruitment and retention. The following outlines these efforts.

### Dual Career

Dr. Holmes, Dr. Jacobson, and Assistant to the Chancellor for Equity, Access and Diversity (EAD), Linda Crump, developed procedures for potential dual career tenure-track hires. These procedures were vetted with the deans of A&S and COE. The procedure included sending a letter explaining the dual career program and a copy of UNL's work-family integration policies brochure to short-listed applicants for every faculty position. The letter explains that if the candidate receives an offer and has a partner, either of whom (candidate or partner) can help to increase the number of women faculty in UNL STEM departments, the candidate should contact the ADVANCE-Nebraska office. In academic year 2012-2013, the procedures were modified based on feedback from search committee and department chairs to include a contact to all search committee chairs within twenty-four hours of receiving the approved short list from EAD. In addition, a copy of the materials sent to candidates is also forwarded to search committee chairs.

Funds from the Cooperative Agreement were used to pay one-fourth of the partner's salary for the first three years (bridge funding). The Academic Affairs office funded an additional one-fourth of the partner's salary for the first three years. It should be noted that when the three-year bridge funding for the partner has expired, permanent funding (or the usual term contracts leading to tenure) is in place. That is, the department and college have worked out a consistent funding stream for whatever term usually applies to the position at the time that the first contract is made. ADVANCE-Nebraska assisted where possible to place STEM women in tenure-track positions. If the initial hire was a woman applying for a tenure-track STEM position, then there was flexibility with finding an academic or professional position on campus for her partner. The establishment of a central office to communicate among the constituents for dual career hires greatly facilitated hires at UNL.

### Faculty committee

The RECRUIT-Nebraska and PROMOTE-Nebraska Committees were formed in the fall of 2008 to 1) collect and disseminate data on the sizes of applicant pools for faculty positions, the responsibility of the Recruit-Nebraska Committee, and 2) collect and disseminate data on the impact of implicit bias on evaluations at all levels in academia, from evaluating faculty applicants to evaluating promotion and tenure files, the responsibility of the Promote-Nebraska Committee. Twelve tenured faculty were invited to serve on these committees (6 faculty on each committee), selected from nominations by STEM department chairs, the Faculty Senate, the Deans of the colleges that house the target STEM departments, and the co-PI team. Professor Concetta DiRusso of the Nutrition and Biochemistry Departments and Professor Brian Robertson of Mechanical Engineering were selected to serve as the chairs of the Recruit-Nebraska and Promote-Nebraska committees. In the spring of 2011, the RECRUIT and PROMOTE committees merged and formed one committee called the ADVANCE Faculty Committee. The committee contained two subcommittees that focused in different, but complementary ways on the critical areas of recruiting, retaining, and promoting an excellent, diverse faculty at UNL. They met regularly (via e-mail, Blackboard, and in face-to-face meetings) during the grant period. Over the course of the project, 18 STEM departments were represented with faculty on the committees.

The Advance Faculty Committee had representation on the ADVANCE Internal Advisory Board (IAB) and participated in several ADVANCE-Nebraska events. In 2009, a two page "Best Practices for Recruitment to UNL" document was created and distributed to all search committee chairs in the fall of 2010. The Office of

Equity, Access and Diversity institutionalized the distribution process of the document by sharing with all new search chairs. During the spring of 2012, the committee created a more in-depth "Best Practices for Faculty Recruitment, Development and Retention, a Guide for Colleges and Departments at UNL" document, as well as shorter two-page documents focused on 1) The Faculty Search Process, 2) Accommodating Work-Life Balance, 3) Annual Evaluation of Faculty, 4) Leadership, Team Development, Collegiality and Community, 5) Recognize and Minimize the Effects of Implicit Bias, and 6) Faculty Retention, Promotion and Tenure.

The documents were disseminated to key stakeholders on campus, including the ADVANCE-Nebraska IAB and through meetings with each of the three vice chancellors, Ellen Weissinger (Senior Vice Chancellor of Academic Affairs and PI of ADVANCE-Nebraska), Ronnie Green (IANR), and Prem Paul (Research and Economic Development). Following approval from the OSVCAA, the documents were forwarded to the president of the UNL Faculty Senate and posted on the ADVANCE-Nebraska website. In addition, the documents were forwarded to the UNL Chancellor's Commission on the Status of Women and to the system-wide Gender Equity Committee (Dr. Holmes is a member of this committee). This committee advises the University of Nebraska (UN) system president, Dr. James Milliken, on gender equity issues; thus the documents are available to the other three campuses in the UN system as well.

### Chancellor's Award

UNL Chancellor Harvey Perlman provided an annual \$1,000 award to the department that creatively advanced the objectives of the ADVANCE initiative. The award was first given in 2011, once there was sufficient data to evaluate records. A committee was formed to select a STEM department to receive the Chancellor's Award that included deans, directors, and former chairs. Recipients of the award included: Electrical Engineering (2011), School of Biological Sciences (2012), and Mathematics (2013). **In 2013, Senior Vice Chancellor of Academic Affairs Ellen Weissinger (PI) and Chancellor Harvey Perlman announced that the award will continue and should be considered institutionalized.**

### Recruit and Retention Chair Workshop Series

In fall 2009, the OSVCAA launched a campus-wide "Best Practices to Recruit and Retain a Diverse Faculty" Initiative. ADVANCE-Nebraska held a special three-part "Recruitment and Retention" workshop series for department chairs, heads and directors, and other administrators to assist with this initiative. Excluding ADVANCE-Nebraska project staff, a total of 92 people attended at least one of the workshops (56 attended the first, 67 attended the second, and 44 attended the third). Of those, 51% attended two or more. Attendees were primarily of higher ranks (most were department chairs/heads, administrators or full professors). Over half of the targeted STEM departments were represented as participants at the workshops.

A substantial amount of material was covered across the three workshops. Evaluation data were presented, including results from the search committee chair focus groups and the UNL climate and network surveys. The climate data were presented to demonstrate what aspects of UNL and Lincoln are most appreciated by faculty; information that could be used to "sell" UNL and Lincoln to faculty recruits. The Recruit Committee presented data on women in STEM, and the Promote Committee presented data on implicit bias and its impact. Evaluation rubrics were distributed for search committees to improve their ability to evaluate applicants consistently. Evelyn Jacobson explained Work-Life Integration (Balance) policies at UNL, which was followed with a discussion about how these contribute to a supportive atmosphere on campus and should be discussed with all short-list candidates. In addition, external presenters also participated in the series. A member of the Lincoln Chamber of Commerce presented on where job growth in Lincoln is occurring and what amenities the town offers. The Cornell Interactive

Theatre Ensemble presented a video to demonstrate the impact of implicit bias. Finally, the last workshop was focused on a presentation by Cathy Trower of the Collaboration COACHE, “Regenerating the Faculty Workforce”, a discussion on the differing expectations of the workforce depending upon when faculty entered it.

Table 4 shows the mean scores for various items addressing the usefulness of the recruit and retain workshops (1=strongly disagree to 5=strongly agree). The items asking about the usefulness of UNL data (comparing to national data and reviewing search focus group data) were consistently perceived as valuable for the September 17th ( $\bar{x}$ =4.20, 4.50 respectively) and October 6th ( $\bar{x}$ =4.56, 4.40 respectively) workshops. The Nov 3<sup>rd</sup> workshop received less agreement ( $\bar{x}$ =3.71, 3.30 respectively) on this item, which may be a reflection of the structure of that event which was solely an external speaker discussing national trends. Interestingly, the September 17<sup>th</sup> workshop presented the network data, but showed the lowest levels of agreement with perceptions that departments should do more to foster faculty connections ( $\bar{x}$ =3.90 on 10/17, 4.19 on 10/6, and  $\bar{x}$ =4.06 on 11/3). While most participants agreed more than disagreed that their department needs procedures for reducing implicit bias, there was not strong consistent support across all workshops ( $\bar{x}$ =4.30 on 9/17, 3.75 on 10/6, and  $\bar{x}$ =3.36 on 11/3). Respondents clearly felt that a workshop structure with information from several sources presented was preferable over receiving the information through reading, with means from all workshops showing disagreement with reading preferences ( $\bar{x}$ =2.50, 2.24, 2.65) and strong agreement with the usefulness of learning from several sources at one workshop ( $\bar{x}$ =4.30, 4.63, 4.00).

Table 4. Mean Agreement among Retention-Focused Event Participants

	Sept. 17th Workshop (N=10)	Oct. 6th Workshop (N=17)	Nov. 3rd Workshop (N=18)
Comparing UNL data to national PhD data is useful	4.20	4.56	3.71
The search focus group data provided valuable information for searching	4.50	4.40	3.30
Our department should do more to foster social and research connections among faculty	3.90	4.19	4.06
My department needs procedures to reducing implicit bias when faculty review applicant files	4.30	3.75	3.36
I would prefer to read about research on faculty recruitment and retention rather than attend workshops	2.50	2.24	2.65
It is useful to learn information from several sources in one workshop	4.30	4.63	4.00

### Chair/Head Data Discussions

Three Data Discussion events for department chairs/heads were held over the last three years of the grant. Eighteen people attended the first data discussion (2011), twenty-one attended the second (2012) and thirty-five attended the last discussion (2013). Twenty of the targeted departments had a representative at the discussions. The presentations were lead by Trish Wonch Hill, ADVANCE-Nebraska’s Postdoctoral Research Associate, Julia McQuillan (Co-I) and Evaluation Lead Researcher, Mindy Anderson-Knott.



Chairs and Heads in the target departments were provided with departmental data sheets (modeled after Utah State’s ADVANCE program) prepared for their department by the ADVANCE-Nebraska evaluation team. These sheets provided recent data on the gender composition of their faculty and in faculty applicant pools, both prior to and during the ADVANCE grant period (2005-2008 and 2009-current year) to show trends over time. The data sheets also included comparison data from CIC peers and national rates of PhDs.

In addition to receiving data regarding their individual department, they were also provided data sheets for STEM departments at the college and university level (Appendix C shows the 2013 college and university level data sheets). Chairs and Heads compared their department data to that of similar departments at UNL, within the CIC, and to national data on doctoral degrees granted by field to generate college-based discussions on each department’s greatest strengths in recruiting and retaining excellent, diverse faculty. Participants also shared their best practices to create a positive departmental climate. At the third annual department data breakfast, Chancellor Perlman also presented the Chancellor’s annual STEM award for a department that has creatively furthered the objectives of the ADVANCE initiative.

Table 5 shows the means for perceptions of usefulness of the material covered (1=strongly disagree to 5=strongly agree), which shows that participants agreed that the material presented at all breakfasts was useful.

Table 5. Mean Agreement among Department Chair Data Breakfast Participants

	The material covered in this workshop was useful for me.
Year 3: Department Chair Data Breakfast 1/21/11 (N=9)	4.4
Year 4: Department Chair Data Breakfast 1/20/12 (N=11)	4.6
Year 5: Department Chair Data Breakfast 2/1/13 (N=9)	4.2

Respondents were also asked to describe what they found most valuable from attending the event. The most common answers from the first data breakfast (in year 3) were learning about the trends in various disciplines, and understanding the complexities of collecting and interpreting data to determine trends across departments and colleges. Most often mentioned in year 4 was the data comparison between departments and with CIC peers. And in year 5, attendees most valued the departmental and university statistics, information about job satisfaction, and issues with dual spouse hiring. Participants were also asked in years 4 and 5 how they planned to share what they learned with colleagues. The most common answers were that they would share the information at a faculty meeting and discuss it with search committee chairs, department chairs and faculty. Participants at all Chair/Head Data Discussion events were asked what topics they would like to have addressed in future ADVANCE-Nebraska events. The most common answers were: strategies to increase women in the applicant pool, the gap between PhD students and faculty job applicants, retention of women faculty, mentoring needs of female vs. male faculty, and implicit bias.

### Department visits

Department visits were added in year three in response to the addition of 9 target departments in IANR. In fall 2010 and spring 2011, Mary Anne Holmes, Evelyn Jacobson, and/or Susan Fritz visited with departments at departmental faculty meetings to disseminate information about ADVANCE-Nebraska. Department visits were not limited to only the additional departments in IANR, but included a variety of

departments deemed in need of information. The departments that were visited included: School of Biological Sciences, Electrical Engineering, Veterinary Medicine & Biomedical Sciences, School of Natural Resources, the Durham School (which comprises the departments of Architectural Engineering, Construction Management, and Construction Engineering), and Computer and Electronics Engineering.

### **Deans and Chairs/Heads Luncheon**

UNL's external evaluator, Ann Austin, gave a luncheon talk to fifteen STEM deans and chairs/heads entitled "Fostering Supportive and Productive Academic Workplaces for a Diverse Faculty: Strategies for Change and Success". This lunch seminar was an opportunity for STEM chairs/heads and faculty members to consider strategic approaches to organizational change and the nurturing of organizational environments supportive of a diverse faculty. Drawing on research on academic work and workplaces, as well as an NSF-ADVANCE-funded study of 19 universities that have had National Science Foundation ADVANCE Institutional Transformation awards, the seminar highlighted an overall framework for creating environments that encourage faculty productivity, satisfaction, and morale. Dr. Austin focused particularly on the role of departmental leaders in creating contexts that are conducive to the success of all faculty members.

### **Network Research**

Network analysis was used to advance basic understanding of the organizational structures influencing promotion and retention of women in STEM departments. BOSR administered surveys in 2008, 2011, and 2013 to all faculty in the targeted STEM departments at UNL. The survey measured five network ties among faculty: research collaborations, membership on departmental service committees, membership on graduate student committees, informal mentoring, and personal connections. The survey also asked questions about faculty productivity, such as publications and grants, and teaching and service responsibilities of faculty. Dr. Christina Falci lead the network research, in collaboration with Megumi Watanabe (graduate student), Dr.'s McQuillan and Holmes (co-PI's), and Dr. Trish Wonch Hill (postdoctoral researcher).

## **Administrative Activities**

### **Internal Advisory Board**

An Internal Advisory Board (IAB) was created at the origination of ADVANCE-Nebraska. In total, 14 people served on the IAB during the funding period from 7 of the 24 targeted departments. The board met several times each year to review progress and provide insight for ADVANCE-Nebraska leadership.

### **External Advisory Board Visit**

ADVANCE-Nebraska also formed an External Advisory Board (EAB) to provide insight from national leaders outside of UNL. In addition to providing guidance through multiple interactions via phone and Skype, the EAB visited UNL April 5-6, 2010. These dates coincided with UNL's annual Research Fair, an annual 4-day (April 5-8) campus-wide celebration of research, creativity, and scholarship. The external Advisory Board submitted a written report based on their 2-day visit that was used to focus future programming.

### **Mid Year Retreat**

A retreat was held in January 2010 for all people working on ADVANCE-Nebraska to assess the program at the mid-point. Participants included members of the Recruit and Promote Committees, the Internal Advisory Board, the Evaluation Team, the Office of Research and Economic Development leaders, and the

co-PIs. The retreat was designed so that all participants could gain an over-arching view of the program's goal and the activities we engage in to achieve those goals. All constituents provided brief presentations or handouts on what they do and what they are responsible for. They each received summary information on the data that the evaluation team collected to inform a discussion on what is working and what is not working. The retreat concluded with a discussion of what a "transformed" UNL would look like and what was needed to institutionalize what is working.

## Formative Evaluation Findings

A number of evaluation activities were conducted to provide formative feedback to guide the program. At all events (recruitment- and retention-focused), participants were asked to describe what topics they would like to have addressed in future events. Common answers provided by participants at 5 or more different events include: career development (development for beginning career faculty, expanding into non-academia work world, how to make career changes), negotiation skills (during job interviews, after hired, negotiating with powerful supervisor), mentoring (how to mentor graduate students and junior faculty, how to seek mentors, female mentorship in male-dominated departments, how to mentor scientists not going into academia), facilitating collaborations (how to improve quality of collaborations, cross-disciplinary collaborations, promoting cross-gender collaboration), writing skills, work-life balance, time management, networking (how to network), and the job search process (how to find and apply for academic jobs, interviewing). Some of these recommendations were provided in early years of the grant and were later offered by ADVANCE-Nebraska in response to these requests. These suggested topics are included in this report to provide guidance for the selection of topics for future professional development events at UNL.

## Search Chair Focus Groups

In an effort to guide ADVANCE-Nebraska efforts, focus groups were conducted with search chairs to provide more detail on the search process for STEM faculty searches. Focus groups with search chairs revealed the substantial variation in how faculty search are conducted. The actual procedures used for each step of the search committee process vary from one department to another. Moreover, many departments perceive faculty searches as an ongoing process. They spend considerable time thinking out and writing up strategic plans that include plans for the next several hires. While some departments scout for potential colleagues at professional conferences, others were uncertain of the ability to discuss new positions before being approved.

Three phases were identified as part of the search process. The first phase of a search is active recruitment of people to the applicant pool. Simply sending out an ad is not sufficient for attracting a broad and deep pool. Many faculty commented that "the personal touch is the most effective [for recruiting]". The second phase is discriminatory: selecting from the pool those candidates that fit the image of the new hire. Departments vary on this phase, but some departments use a rubric to judge each applicant on the identified criteria. The third phase of the search, the interview, is a return to active recruitment, selling the candidate on the department and on UNL. "While they are here, we try to sell them as hard as we can." In addition to on-campus interviews, some departments also utilize pre-interview screening by telephone or at professional meetings. The process of selecting the final candidate also varies by department. In some departments, the search committee meets to discuss the candidate after each interview and meets again after all of the interviews are done. In other departments, there is only one meeting after all of the interviews are complete. Furthermore, in some departments the entire faculty meets, while in others only the search committee meets.

### Senior STEM Women Focus Groups

Overall, the perspectives described by associate and full professor STEM women in focus groups helped the ADVANCE-Nebraska evaluation and leadership team to understand better the results of the 2011 climate survey. The ADVANCE-Nebraska Project Director, Dr. Holmes, used the findings from the focus group report to generate a list of recommendations, which were shared with OSVCAA and IANR administration (Appendix D).

Participants reflected both positive and negative experiences, with some reporting a seamless promotion and tenure process, while others recalled elements of the process that were overwhelming and challenging. Most notable were challenges associated with consistency, clarity, transparency, rigid expectations, and inclusion of personal information in the process. Furthermore, among associate professors, these challenges raised questions on the benefits of seeking promotion to full professor. Changes in job satisfaction after promotion were complex. Reasons for increased job satisfaction were a sense of job security, a stronger voice in the department, enjoyment of work, and the perception that work was valued in their department. Service was often recalled as a source of stress that reduced job satisfaction because it is perceived as undervalued and an unfair burden on women. Job satisfaction was also decreased due to a shrinking support system and a growing sense of isolation as women rise in rank. The effects of social interactions were discussed as participants felt that this affected women differently than men.

Several participants were part of a dual career couple, where the general consensus was satisfaction when a tenure-track position was accommodated, and frustration when it was not. A successful dual career placement led many to feel a sense of loyalty to UNL, they felt it unlikely they would find an opportunity to find a similar arrangement elsewhere. In contrast, a less successful partner hire made some more likely to consider leaving. Many participants had experienced a time when they considered leaving UNL, but stayed for a variety of reasons including family, quality of life in Lincoln, and aspects associated with UNL such as loyalty/commitment to colleagues and students.

Finally, focus group participants recommended various policies and practices that could improve faculty life. With regard to the review process, many expressed a need for transparency, valuation of service, equity, clarity and standardization (specifically the use of metrics) within and across departments at UNL. Some suggested leadership role rotation to reduce burden and provide opportunity. Additionally, general faculty equity was discussed; both in terms of the evaluation process, as well as workload and scheduling.

### Exit Surveys

The following summarizes findings from a 2009 report issued by researchers at Rice University (Mikki Hebl, Katharine Bachman, & Larry Martinez), as well as findings from a subsequent exit survey administered by the UNL evaluation team.

#### *Rice University (UNL sample)*

Of the 40 UNL faculty who responded to the nationwide exit survey conducted by Rice University, 86% were tenured when they departed. Most faculty who left UNL (93%) had an outside job offer in hand when they left the university and more than half (53%) who had an offer in hand had not solicited this offer. The majority (71%) of those with a job offer in hand reported that this unsolicited offer was not the event that first made them think of leaving UNL. When asked what type of organization they moved to, most former faculty members of UNL left for a similar institution (47%), while 25% said they left UNL for a more research-oriented faculty position and 17% left for a more teaching-oriented faculty position. On average,

the new salaries reported were higher than their UNL salaries; however, for most employees (59%), this was not the main factor in their decision. UNL did not make a retention offer to the majority of these departing employees; specifically, only 39% of employees indicated that UNL attempted to retain them.

Six themes arose from qualitative responses explaining why participants left UNL. The most common reason was dissatisfaction with management issues, usually at the university level (there was no gender difference). Recruitment was also a common reason, with men being more likely to report this. Other common reasons included family reasons, such as childcare or eldercare (women were more likely to report this reason) and spousal employment situation. Quantitative measures asking about reasons showed that three respondents indicated their reason for departure was mostly related to race, while six respondents indicated that their departure was at least somewhat related to gender. No notable differences were found between men and women with respect to event-related gender issues, gender discrimination, personal issues, or climate measures. However, male former faculty reported more job embeddedness, higher satisfaction with the campus community, and slightly more satisfaction with the appreciation they received than women. In contrast, women reported higher satisfaction with colleagues outside of their department.

Overall, it appears that the most common reasons for both male and female former faculty members to leave are 1) perceiving mismanagement in the leadership at UNL and 2) being recruited by another institution. On average, former faculty members tend to feel at least somewhat satisfied with UNL, somewhat embedded in the culture of UNL, and mostly comfortable with the UNL climate (average scores were above 'somewhat' on our scale). The results suggest that women's experiences at UNL are not much different than men's; particularly with respect to perceived discrimination, perceived harassment, and organizational climate. Although the results we obtained center mostly on a perceived lack of communication and input for faculty members in the decisions of the university, we must emphasize that the results should be interpreted with caution since the sample size for this research was relatively small.

### *UNL Exit Survey*

In the subsequent exit survey administered by the evaluation team, all 11 respondents reported leaving UNL voluntarily and described their post-UNL employment situation as a new academic position. Eight reported actively looking for another position while at UNL, with the remaining 3 reporting that they followed up on unsolicited contacts. Participants reported that geographic location and the opportunity to focus more on a specialty area were most important to exiting UNL. The only gender difference among reasons for leaving was that men were more likely to leave for opportunities to collaborate, while women were more likely to leave for professional development opportunities. In addition to factors that attract faculty away, the survey asked about factors that could push faculty towards leaving. The responses indicated that faculty found departmental leadership and department problems (such as tension, lack of friendliness or collegiality) to be the most influential UNL factors in their decision to leave. When asked about personal factor that influenced their decision to leave, the most influential factor was that a spouse or partner was not able to find a suitable job in the area. There were no gender differences in these push factors.

In addition to surveying former faculty, their former department chairs also provided insight. Most chairs indicated that they wanted to keep the person at UNL. Chairs were specifically asked to describe what had been done to encourage the faculty member to stay at UNL. Most often they reported that nothing was done, but some chairs reported that a counter offer was either suggested or offered (only two former faculty reported actually receiving a counter offer). Additional efforts included: colleagues urged person to stay,

dean sent emails, they were given flexibility to conduct research, teaching and service in their areas of interest, apportionment was negotiated, an arrangement to allow them to teach for another college for a semester was investigated, early promotion was given, a change in appointment was made, the salary of an outside offer was matched, a retention package was offered, and “everything possible” was done. When former faculty members were asked what could have been done that would have helped them stay at UNL, the most often cited response was to help their partner obtain a job. Other efforts that former faculty felt would have helped them stay included: receiving a counter offer, getting new department leadership, and hiring at least 2 minority faculty at one time (so that minority faculty don’t feel so isolated).

### Involvement

Individual involvement in ADVANCE-Nebraska varied greatly among men and women STEM tenured and tenure-track faculty over the course of the five years of the grant. Table 6 shows the average number of all ADVANCE-Nebraska events attended for men and women, chairs/heads, and members of ADVANCE-Nebraska leadership groups, as well as the numbers broken down by whether they attended events focused on recruitment, retention, data breakfasts, writing retreats, or the recruit/retain series. The N’s for men and women represent all faculty in the 24 targeted STEM departments who were tenured and tenure-track at any time between 2008 and 2013. Similarly, the N’s for the other columns also represents faculty who served in those roles as some point during the funding period.<sup>2</sup> The number of total events in each category is listed by the event name. The means in the table represent the average number of attendances for each group, while the max represented the most attendances by any one person in the group.

Table 6. Average Number of ADVANCE-Nebraska Events Attended by Gender and Leadership

	STEM Men (N=536)		STEM Women (N=100)		Chairs/Heads (N=48)		Internal Advisory Board (N=14)		Faculty Committee (N=18)	
	Mean	Max	Mean	Max	Mean	Max	Mean	Max	Mean	Max
All Events (47 events)*	0.59	12	2.64	16	2.92	12	5.57	10	5.78	13
Recruitment Events (7 events)*	0.09	4	0.25	4	0.46	4	0.86	4	1.28	4
Retention Events (29 events)	0.3	9	1.98	15	1.1	7	3.14	7	3.11	9
Writing Retreats (5 events)	0.02	2	0.22	3	0.05	1	0.14	1	0.11	1
Data Breakfast - Chairs and Heads (3 events)	0.08	3	0.06	2	0.71	3	0.71	2	0.28	3
Recruit/Retain Series (3 events)	0.08	3	0.12	3	0.54	3	0.57	3	0.89	3

\*COE Best Practices Event attendance unavailable at time of analysis

<sup>2</sup> A department members chair/head status may have changed over the course of the five years of ADVANCE, thus for the 24 departments, 48 chairs/heads were actually identified as serving in that role at some point. It is possible that for any given event, the faculty member may have not been a chair at the time of the event; however, their leadership role in the department, and involvement in ADVANCE-Nebraska is important whether their involvement occurred prior, during, or after serving as chair/head.

Looking at all 47 events, of the 536 STEM men faculty at UNL, the average attendance per male faculty was .59 events (less than 1), while one male STEM faculty attended as many as 12 ADVANCE events. **Women had dramatically higher attendance, with the average STEM female faculty member attending 2.64 events over the 5 years.** This pattern held up for all of the different types of ADVANCE-Nebraska events, excluding events targeting chairs, which is likely a reflection of the overwhelming majority of STEM chairs and heads being men (92% of chairs/heads were men during the grant period).

With the exception of writing retreats (which is an expected exception), **STEM chairs and heads were very involved in ADVANCE-Nebraska events.** On average, each department chair/head attended nearly three ADVANCE-Nebraska events (average was 2.92 across all events). Among the events targeting chairs/heads, attendance was especially strong. The average STEM chair attended .71 of the 3 data breakfasts and .54 of the 3 recruit/retain series events. Members of the IAB and of the Faculty Committee were also highly involved in ADVANCE-Nebraska events; the 14 IAB members averaged 5.57 events and the 18 Faculty Committee Members averaged 5.78 events.

### *College Level Involvement*

Individual involvement data were aggregated by department and reported at the college level (department level involvement is reported in the following section). Colleges at UNL are an important unit of analysis due to the lapsed roll out of ADVANCE-Nebraska programs (IANR), and because there are different levels of buy-in, awareness, and involvement at administrative levels, in leadership rolls, and among faculty by college. The first two rows of Table 7 show demographic characteristics of the three colleges with STEM departments at UNL (the N's show the number of departments per college as departments are the unit of analysis). When looking at the sizes of departments, Table 7 shows that IANR had the largest departments (averaging 31.44 tenured/tenure-track faculty per department), while the COE had the smallest, averaging 17.71). The proportion of STEM tenured and tenure-track women faculty also varied by college; A&S, on average, had the highest proportion of STEM women faculty (.20) while the COE had the smallest (.09).

Department involvement was calculated by summing all attendances for each department member in the 24 STEM departments, and then calculating the average number of attendances divided by the total number of faculty in a department, which controls for department size. This was calculated for all tenured and tenure-track faculty across each department, as well for STEM women faculty, STEM men faculty and STEM chairs/heads in each department.

Departments in A&S showed the most involvement across all ADVANCE-Nebraska events, with each department in that college averaging 1.33 attendances per faculty member across all seven departments, with one department averaging 2 attendances per faculty member. The COE departments were the least involved, averaging .45 attendances per faculty across all departments, with the most involved department averaging .86 attendance per faculty. The same trend generally held for the different groups within departments (men, women, and chairs/heads), and across different types of events. The main exceptions were chair involvement in recruitment events, which were most often attended by chairs/heads in IANR (.07), and writing retreat attendance, which was most often attended by faculty in A&S and COE (.07).

Table 7. Average Number of ADVANCE-Nebraska Events Attended by College, Gender and Leadership

	A&S (N=7)		COE (N=8)		IANR (N=9)	
	Mean	Max	Mean	Max	Mean	Max
<b>Department Demographics</b>						
Total Department Members	28.38	44.00	17.71	42.00	31.44	63.00
Proportion of Women Faculty	0.20	0.36	0.09	0.23	0.14	0.25
<b>All Events (47 events)*</b>						
All	1.33	2.00	0.45	0.86	0.75	1.80
Female	0.60	1.61	0.16	0.31	0.32	1.00
Male	0.74	1.27	0.29	0.67	0.43	0.80
Chair	0.32	0.54	0.07	0.33	0.27	0.67
<b>Recruitment Events (7 events)*</b>						
All	0.17	0.38	0.01	0.05	0.14	0.40
Female	0.05	0.15	0.00	0.00	0.06	0.35
Male	0.13	0.38	0.01	0.05	0.08	0.22
Chair	0.04	0.12	0.01	0.04	0.07	0.22
<b>Retention Events (29 events)</b>						
All	0.86	1.43	0.25	0.50	0.43	0.90
Female	0.45	1.27	0.14	0.31	0.22	0.55
Male	0.41	0.76	0.11	0.36	0.21	0.47
Chair	0.11	0.29	0.03	0.08	0.10	0.28
<b>Other Events</b>						
Writing Retreat (5 Events)	0.07	0.14	0.07	0.11	0.02	0.06
Chair Data Breakfasts (3 Events)	0.10	0.13	0.03	0.17	0.09	0.17
Recruit Retain Series (3 Events)	0.08	0.13	0.03	0.12	0.08	0.35

\*COE Best Practices Event attendance unavailable at time of analysis

The numbers in Table 8 for leadership participation do not represent average number of attendances as do the event variables. Instead, they represent the average number of people for each department that had a specific leadership role in ADVANCE-Nebraska. Across the five years, the IAB had a total of 14 members across departments in all three colleges, with most members coming from A&S (.63), followed by COE (.29) and IANR (.22). The Faculty Committee had a total of 18 different members throughout the five years of ADVANCE-Nebraska. On average, the departments in A&S had .57 members on the Faculty Committee, while both the COE and IANR had more departments with zero members, and thus, a lower average (.29 and .44). There was only 1 member that overlapped between the IAB and the Faculty Committee over the five years of ADVANCE-Nebraska. **Looking at average total leadership, A&S had the most involvement (2.13 members per department), followed by IANR (.63), and then COE (.57).**

Placement of tenured and tenure-track faculty hired into the 24 STEM departments as part of a dual career couple by the end of the 2011-2012 academic year shows that all colleges were involved in this program. IANR departments received the most women hired as part of a dual career package (.67), followed by A&S (.50) and COE (.43). However, all colleges did not universally utilize other ADVANCE-Nebraska funding opportunities. Departments in A&S were most likely to use ADVANCE-Nebraska funding for showcase visitors (.50) and recruitment ambassadors (.38), while departments in IANR were less likely, and COE departments did not use these funding opportunities at all.



Table 8. Average Number of ADVANCE-Nebraska Events Attended by College, Gender and Leadership

	A&S (N=7)		COE (N=8)		IANR (N=9)	
	Mean	Max	Mean	Max	Mean	Max
<b>Leadership Participation</b>						
Internal Advisory Board	0.63	2.00	0.29	1.00	0.22	1.00
Faculty Committee	1.38	2.00	0.29	1.00	0.33	2.00
Total Leadership	2.13	5.00	0.57	1.00	0.67	2.00
<b>Dual Career Participation</b>						
Dual Career Women Hires	0.50	1.00	0.43	2.00	0.67	2.00
Dual Career Male Hires	0.50	1.00	0.29	1.00	0.44	2.00
<b>Other Funding</b>						
Showcase Visitors	0.50	1.00	0.00	0.00	0.11	1.00
Recruitment Ambassadors	0.38	2.00	0.00	0.00	0.11	1.00

### Department Level Involvement

The evaluation team created an involvement matrix (Table 9) to assess involvement at the individual department level, which shows the average number of faculty in each department (gray column) and the number of attendances of these faculty in the various events and roles offered by ADVANCE-Nebraska (light green). The column summarizing total event involvement (mid-tone green) shows the total number of attendances by each department (the % is the total attendances divided by total possible attendances if all faculty attended all events), whereas the column totaling the number of faculty who participated (darker green) shows the number of faculty in each department who attended at least one event (the % is the total faculty participating divided by total average faculty in the department). The blue columns show leadership participation and the pink columns show dual career involvement by department.

Total event involvement (mid-tone green) assesses the dosage any given department receives, which could potentially be one champion attending multiple events. Given this measurement, the departments of Earth and Atmospheric Sciences (9%), Biological Sciences (5%), and Mathematics (5%) received the highest dosage. Civil Engineering (4%) received the highest dosage in the COE, and Biochemistry (4%) received the highest in IANR. Alternatively, the proportion of faculty participating (dark green) evaluates reach of the department to some form of ADVANCE-Nebraska programming. Overall, wide departmental involvement was observed, with one-third of the targeted departments (8) having half or more of their faculty attend at least one event. Chemistry had the highest proportion, with 68% of their faculty participating, followed closely by Statistics (64%), Earth and Atmospheric Sciences (63%), and Biochemistry (62%). As mentioned earlier, the COE was least involved; however, each department in that college had at least 2 faculty members participate (Mechanical and Materials Engineering had the smallest proportion of faculty participating, with 17%). Wide exposure to ADVANCE-Nebraska leadership roles was also observed, with only 7 departments not represented (3 in the COE and 4 in IANR). Finally, dual career programming reached a wide range of departments with 14 of the 24 targeted departments being involved in the 28 dual career related hires. **In sum, ADVANCE-Nebraska programming showed wide reach across the targeted STEM departments.**

Table 9. Involvement in ADVANCE-Nebraska by Department

	Tenured/Tenure-track Faculty Avg 2008-2013	Recruitment-Focused Event (8 events)	Retention-Focused Event (28 events)	Writing Retreat (5 events)	Chair Data Discussions (3 events)	Recruitment/Retention Series (3 events)	TOTAL EVENT INVOLVEMENT	% EVENT INVOLVEMENT	TOTALNUMBER OF FACULTY WHO PARTICIPATED	% FACULTY PARTICIPATING	PI	Co-PI	Member of IAB	ADVANCE Faculty Committee	TOTAL LEADERSHIP INVOLVEMENT	Dual Career-related Women Hires	Dual Career-related Men Hires	TOTAL DUAL CAREER INVOLVEMENT
Biological Sciences	34	7	58	3	2	2	72	5%	15	44%	0	0	1	1	2	2	1	3
Chemistry	22	10	17	1	3	4	35	3%	15	68%	0	0	0	1	1	1	1	2
Computer Science & Engineering	23	2	13	2	3	0	20	2%	11	48%	0	0	0	1	1	0	1	1
Earth & Atmospheric Sciences	19	11	51	7	5	8	82	9%	12	63%	0	1	2	2	5	0	0	0
Mathematics	34	10	51	5	4	5	75	5%	20	59%	0	0	2	2	4	1	1	2
Physics & Astronomy	23	0	11	0	1	4	16	2%	9	39%	0	0	0	1	1	0	0	0
Statistics	11	3	11	1	1	0	16	3%	7	64%	0	0	0	1	1	0	1	1
<b>College of Arts &amp; Sciences Total</b>	166	43	212	19	19	23	316	4%	89	54%	0	1	5	9	15	4	5	9
Architectural Engineering	10	0	3	1	0	0	4	1%	2	20%	0	0	1	0	1	0	0	0
Chemical & Biomolecular Engineering	12	0	5	1	0	0	6	1%	5	42%	0	0	0	1	1	0	0	0
Civil Engineering	20	0	23	1	3	6	33	4%	8	40%	0	0	0	2	2	1	0	1
Computer & Electronics Engineering	10	1	1	0	0	0	2	0%	2	20%	0	0	0	0	0	0	0	0
Construction Management	7	1	0	1	0	0	2	1%	2	29%	0	0	0	0	0	0	1	1
Construction Engineering (Systems)	11	0	3	1	0	0	4	1%	3	27%	0	0	0	0	0	0	0	0
Electrical Engineering	19	1	10	0	3	2	16	2%	7	37%	0	0	1	0	1	1	0	1
Mechanical & Materials Engineering	35	2	5	4	2	3	16	1%	6	17%	0	0	0	1	1	2	1	3
<b>College of Engineering Total</b>	124	3	50	9	8	11	81	1%	35	28%	0	0	2	4	6	4	2	6
Agronomy & Horticulture	43	4	17	4	2	2	29	1%	15	35%	0	0	1	0	1	0	0	0
Animal Science	25	4	9	1	3	1	18	2%	6	24%	0	0	0	2	2	0	0	0
Biochemistry	13	4	15	0	3	4	26	4%	8	62%	0	0	0	1	1	2	0	2
Biological Systems Engineering	19	3	13	0	2	0	18	2%	5	26%	0	0	0	0	0	1	1	2
Entomology	12	6	8	0	3	0	17	3%	6	50%	0	0	0	0	0	0	0	0
Food Science & Technology	14	1	6	1	2	3	13	2%	5	36%	0	0	0	1	1	2	0	2
Plant Pathology	13	3	14	0	1	2	20	3%	7	54%	0	0	1	0	1	0	1	1
School of Natural Resources	37	1	20	0	3	2	26	2%	11	30%	0	0	0	0	0	1	2	3
Veterinary Medicine & Biomedical Sciences	18	2	8	1	0	0	11	1%	7	39%	0	0	0	0	0	0	0	0
<b>IANR Total</b>	194	28	110	7	19	14	178	2%	70	36%	0	0	2	4	6	6	4	10
Non-STEM Departments	NA	39	110	27	3	62	241	NA	111	NA	0	1	4	1	6	0	2	2
Administrators	NA	11	76	1	15	43	146	NA	46	NA	3	3	8	0	14	0	1	1