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Any opinions, findings, conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation.
Final Report

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# Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive Summary</td>
<td>1</td>
</tr>
<tr>
<td>Approach</td>
<td>3</td>
</tr>
<tr>
<td>Activities and Accomplishments.</td>
<td>3</td>
</tr>
<tr>
<td>Outcomes, Measures of Success and Future Objectives</td>
<td>9</td>
</tr>
<tr>
<td><strong>Goal 1</strong> Overcome known barriers to the advancement of women faculty in STEM disciplines.</td>
<td>9</td>
</tr>
<tr>
<td><strong>Goal 2</strong> Identify and eliminate department specific barriers to the advancement of women faculty in STEM disciplines.</td>
<td>17</td>
</tr>
<tr>
<td><strong>Goal 3</strong> Increase the representation of women and underrepresented minorities at senior faculty and leadership ranks.</td>
<td>20</td>
</tr>
<tr>
<td><strong>Goal 4</strong> Institutionalize positive change across the university.</td>
<td>26</td>
</tr>
<tr>
<td>Conclusions</td>
<td>28</td>
</tr>
<tr>
<td>Broader Impacts</td>
<td>29</td>
</tr>
<tr>
<td>Sources of information in this report</td>
<td>29</td>
</tr>
<tr>
<td>APPENDICES</td>
<td>31</td>
</tr>
<tr>
<td>1. PRODUCTS, REPORTS AND PRESENTATIONS</td>
<td>32</td>
</tr>
<tr>
<td>2. PROGRAM ORGANIZATION</td>
<td>38</td>
</tr>
<tr>
<td>3. ADVANCE SCHOLAR REPORT 2012</td>
<td>42</td>
</tr>
<tr>
<td>4. INDICATOR TABLES</td>
<td>46</td>
</tr>
<tr>
<td>Table 1 Number and percent of women tenured and tenure track faculty by rank, department and discipline, 2011</td>
<td>47</td>
</tr>
<tr>
<td>Table 2 Number and percent of tenure track and non-tenure track faculty by gender, department and discipline, 2011</td>
<td>49</td>
</tr>
<tr>
<td>Table 3 Tenure review outcomes by gender, college and discipline, 2011</td>
<td>51</td>
</tr>
<tr>
<td>Table 4 Promotion review outcomes by gender and discipline: Associate to Full Professor, 2011</td>
<td>52</td>
</tr>
<tr>
<td>Table 5a and 5b</td>
<td>53</td>
</tr>
<tr>
<td>Table 6 Voluntary, non-retirement attrition by rank, gender &amp; discipline, 2011</td>
<td>54</td>
</tr>
<tr>
<td>Table 7 New hires by department and discipline, 2011</td>
<td>55</td>
</tr>
<tr>
<td>Table 8 Faculty leadership positions by gender 2011</td>
<td>56</td>
</tr>
<tr>
<td>5. EXTERNAL EVALUATORS’ REPORT (MARCH 2012).</td>
<td>57</td>
</tr>
<tr>
<td>6. PARTICIPANTS</td>
<td>71</td>
</tr>
<tr>
<td>7. PROJECT OUTCOMES REPORT FOR PUBLIC (AVAILABLE ON RESEARCH.GOV)</td>
<td>78</td>
</tr>
</tbody>
</table>
Executive Summary

Over the past six years, the ISU ADVANCE Program has become Iowa State’s most prominent vehicle to recruit, retain, and advance women and women of color in STEM faculty positions. We are known for a well-managed network, innovative research, and an integrated approach to change. We have worked within departments using a Collaborative Transformation approach to improve the work environment for all faculty members. Our program has identified cultures, practices, and structures that enhance or hinder the careers of ISU faculty, and we have worked with faculty and administrators to transform university policies, practices, and academic culture in pursuit of a diverse and vibrant faculty in STEM disciplines. The ISU ADVANCE Program’s Comprehensive Institutional Intervention Strategy focused on four primary goals:

1. Overcome known barriers to women’s advancement across ISU STEM fields, focusing on transparency, isolation, mentoring, and career flexibility.
2. Overcome department-specific barriers to women’s advancement in STEM.
3. Increase overall participation and advancement of women faculty in senior and leadership ranks.
4. Institutionalize positive changes at the university level.

The ISU ADVANCE Program included both “bottom up” and “top down” approaches. Our “bottom up” activities included department interventions that were part of the Collaborative Transformation project. We also engaged in “top down” activities that addressed policies and practices at the college and university levels. We sought to illuminate both subtle and overt impediments to equity, and to design strategies to dissolve impediments, thus transforming Iowa State University into an institution that facilitates retention and advancement of women and all underrepresented minorities. Our approach focused on transforming departmental cultures (views, attitudes, norms and shared beliefs), practices (what people say and do), and structures (physical and social arrangements), as well as university policies, through active participation of individuals at all levels of the university.

At the university level, we focused on identifying subtle and overt impediments to equity and implementing policies to dissolve these barriers. We combated isolation by hosting networking events and workshops and by launching a mentoring program for women faculty of color. We highlighted the accomplishments of women in STEM by hosting a lectures program. Workshops and networking meetings facilitated interactions within the university, building a community of women STEM faculty, and thereby reducing isolation. We developed resource materials for a diversity workshop, discussions of subtle gender bias, and several Readers Theatre productions that centered on ADVANCE themes. ISU’s Office of Institutional Research annually compiled data reporting on the rank, recruitment and retention of ISU faculty. We hosted a national meeting on faculty flexibility in 2008 and participated in two major national surveys to take the pulse of our community. We developed working partnerships with the Executive Vice President and Provost, Associate Provost, Deans, College Equity Advisors, College Diversity Committees, Department Chairs, and ADVANCE Professors. This consortium developed and transformed policies to 1) increase the transparency of decision-making and faculty evaluation, 2) institutionalize flexible career options, 3) enhance the process for accommodating dual career partners, 4) strengthen and expand mentoring efforts, 5) expand training for department chairs, 6) increase awareness by administrators, faculty and staff of issues for women in STEM fields, and 7) expand opportunities for professional development specifically for women faculty of color.
At the department level, and as part of the Collaborative Transformation process, we developed the research protocols essential for conducting interviews with department chairs and faculty. A three-step process for departmental transformation included (1) focus groups and faculty interviews to discuss department culture, practice and structure, (2) needs assessment meetings and training sessions tailored to meet the unique needs of individual departments, and (3) collaborative problem-solving sessions involving department faculty and ADVANCE program leaders. Key partners and change agents were Equity Advisors, one in each of the three focal colleges, and ADVANCE Professors and department chairs in each of the focal departments. Focal departments made both small scale and large changes to their governance documents, and advances were made in promotion and tenure policies, work-life balance, recruitment and hiring, utilization of departmental resources, and the number of women Full Professors.

As we complete the NSF-funded portion of our work, the ISU ADVANCE Program can claim success. We have indeed changed the working environment, which can be measured in terms of cultures, practices and structures of the university. Some of these changes can be measured qualitatively. For example, faculty are more comfortable discussing issues related to ADVANCE (unconscious bias, modified duties and tenure clock extensions for family needs, parental leave, work-life balance, etc.) and the level of understanding of these issues at the university has been heightened. Other changes can be measured in a quantitative fashion, and these include both demographic changes as well as changes in measures of faculty satisfaction. For example, from 2006 to 2011, there have been increases in the percent of women deans, department heads, higher level academic leaders, and Full Professors university-wide. We also saw increases in women faculty promoted from Associate to Full Professor, and this increase was particularly striking in focal departments where ADVANCE exerted its most concentrated programming efforts. Survey data indicated that ISU exhibited improving trends between 2005-06 and 2009-10 when it came to 1) receiving consistent messages about tenure, 2) stop the tenure clock policy, 3) spousal/partner hiring program, and 4) both having children and making the tenure-track compatible and 5) raising children and making the tenure-track compatible.

Our long-term goal is that the changes in culture, practice and structure implemented as a result of the ISU ADVANCE program will create environments under which women faculty in STEM can do their best work, thereby improving the success of all faculty. With the support of the Provost’s office and the colleges, we have institutionalized key components of ISU ADVANCE. Equity Advisors have been maintained in the initial three colleges and these positions are being added in the remaining five colleges within the university. Collaborative transformation will now be implemented as a part of the departmental review process. An ADVANCE Faculty Fellow, housed in the Provosts Office, is leading the institutionalization of these efforts. As leadership changes at the university, there will be ongoing opportunities at college and department levels for professional development and discussions of ADVANCE-related issues. There will always be additional work to do with respect to both policy and practice, but significant progress has been made as a result of the NSF Institutional Transformation award and a culture appreciative of the value of this change has been created.
Approach

The ISU ADVANCE Program was based upon a top-down – bottom-up approach (Figure 1, left), which has been instrumental in achieving our goals.

At the University Level, Provost Elizabeth Hoffman and Associate provost Dawn Bratsch-Prince, and Susan Carlson before her, have been very supportive of efforts to develop and sustain key transformative aspects of ISU ADVANCE, such as policy changes, faculty flexibility, and faculty search resources.

At the college level, Equity Advisors are senior faculty who have played key roles in communication and implementation of ADVANCE goals. These positions were established with NSF grant funds, but have repeatedly been acknowledged as some of the most valuable positions created via the ADVANCE program and are now being continued with funding from each of the three original colleges as well as two additional colleges (Veterinary Medicine and Human Sciences).

A major portion of NSF resources has been dedicated to the department level, the bottom up portion of the project. Faculty members in nine focal departments, called ADVANCE Professors, have been leaders within their departments on the Collaborative Transformation (CT) project. Although the ADVANCE Professor positions will not continue in a formal way after the grant ends, the individuals who served in these positions gained important training and leadership skills as ADVANCE Professors and several of these individuals are now taking on administrative roles in their departments and colleges. In this sense, the ADVANCE goals are also "institutionalized.” Details of the organizational structure of the ISU ADVANCE Program are explained in Appendix 2.

Activities and Accomplishments

Each year the ISU ADVANCE program expanded in terms of the number of departments it engaged and the realm of topics that the team addressed. Beginning in Year 2, we identified an annual theme upon which to focus our activities. Because the Provost’s Office of ISU also contributed the support for one Faculty Fellow annually, we were able to identify and then address emerging issues related to ADVANCE that were not initially listed as goals within the NSF grant. The annual themes included:

Year 2: Unintentional Bias
Year 3: Recruiting the Best: The role of work-life flexibility.
Year 4: ADVANCE-ing Faculty: Pathways to Promotion and Leadership.
Year 5: ISU ADVANCE: building on a solid foundation.
We have identified activities and accomplishments at the level of the department, the college, and the university, and we have also extended our impact beyond ISU state through our publications and our participation in our scholarly communities. A list of our dissemination products is provided in Appendix 1. The annual activities and accomplishments are highlighted below:

Year 1 Activities and Accomplishments
During the first year, the co-PIs and senior personnel on the grant guided the development of the department level transformation as well as the expansion of personnel in the three colleges to assist with transformational efforts. Important activities and accomplishments in Year 1 were:

- **Program organization and evaluation**
  - We built infrastructure for our Collaborative Transformation project by selecting ADVANCE Professors for three departments and college-level Equity Advisors.
  - We collected data from ISU's Office of Institutional Research (IR), which was used both for reporting on the current state of the university and forming a baseline for analysis of changes in the future.

- **Addressing barriers in departments through Collaborative Transformation**
  - We developed the research protocols essential for conducting interviews with department chairs and faculty, and conducted the first round of faculty interviews in three focal departments. We analyzed the data and shared the results with the departments during needs assessment meetings.

- **Addressing barriers at the college and university levels**
  - We developed resource materials for a diversity workshop and discussion of subtle gender bias.
  - We began combating isolation by hosting three networking events and a day-long workshop.
  - We planned and launched a mentoring program for women faculty of color. During summer 2007, eminent scholars were selected as mentors for participants.

- **Institutionalize positive change**
  - We shared information about the ISU ADVANCE Program with the university community through our website (www.advance.iastate.edu), presentations to college and university leadership committees, brochure, and posters.

Year 2 Activities and Accomplishments
During the second year, the co-PIs and senior personnel on the grant worked intensively to implement Collaborative Transformation activities at the department level and to provide workshops and networking events for focal colleges and the campus at large. We identified the theme of *Unintentional Bias* for our activities. Important accomplishments in Year 2 were:

- **Program organization and evaluation**
  - During year 2, we added a Steering Committee, Internal Advisory Board, Research Director, and an Equity Advisor/ADVANCE Professor (EA/AP) group that met bi-weekly with co-PIs to discuss findings and share strategies.

- **Formative Evaluation:**
  - Held ADVANCE Council planning retreat resulting in theme and focus for year of unintentional bias at the department level
  - Hired organizational consultant to advise ADVANCE team
  - External evaluation provided feedback on strengths and suggestions for change
  - Designed and administered American Associations of University Data Exchange (AAUDE) faculty satisfaction survey
• Addressing barriers in departments through Collaborative Transformation
  o Implemented full CT process in three focal departments
  o Completed three focal department reports on climate, recruitment and retention.
  o Completed and disseminated to the university community a synthesis report of
    findings for first three focal departments
• Addressing barriers at the college and university levels
  o Held four networking events and two campus-wide workshops based on theme of
    unintentional bias
  o Provided workshops for Department Chairs
    ➢ Three STEM chairs who attended a conference at the University of Washington
      (LEAD-Leadership Excellence for Academic Diversity) reported to ISU
      colleagues at a workshop.
    ➢ COACHE (Collaborative on Academic Careers in Higher Education) summary
      regarding tenure-eligible faculty with guest Dr. Cathy Trower
    ➢ Fall and spring workshops on Cognitive Errors
  o Faculty Fellow focused on faculty recruiting, developed a CD including search
    resources, and information from internal and external sources
  o Faculty Search Resources were posted on the ISU ADVANCE website and
    published on a CD.
• Conference Development – Planned for hosting national conference on Faculty
  Flexibility for October 2008 (Year 3).
• Institutionalize Positive Change
  o Built partnerships both within the university and outside the university
  o Shared costs of program administration, Faculty Fellow and Equity Advisors with the
    Office of the Executive Vice President and Provost and with college deans
  o Assembled data sets on recruitment, retention and promotion of women faculty. This
    included changes in data tracking to customize available data, as well as
    establishing new procedures for data collection.

Year 3 Activities and Accomplishments
During Year 3, we identified the theme of *Recruiting the Best: The role of work-life flexibility*. Important activities and accomplishments in Year 3 were:
• Program organization and evaluation
  o The Council expanded to include representatives from five STEM colleges, three
    new Round 2 focal departments and representatives from Round 3 departments.
  o Evaluation included a Council planning retreat, consultation with our External
    Advisors, and planning with an evaluation consultant at Iowa State.
• Addressing barriers in departments through Collaborative Transformation
  o We added three departments, Round 2.
  o Round 1 focal departments effected change that they believe improved their culture,
    structure, practice and disseminated progress via a campus workshop.
• Addressing barriers at the college and university levels:
  o Transparency
    ➢ Faculty search resources were shared with the campus during two
      workshops and through the distribution of >200 CDs.
    ➢ A workshop for department chairs used a Readers Theatre to address the
      topics of promotion and tenure.
  o Isolation
    ➢ The ADVANCE lecture series demonstrated the connection between
      prominent women scholars and transformation of the academy.
Mentoring
- The ADVANCE Scholars program matched five women of color with external Eminent Scholars. Pairs met to discuss research and present seminars.

Faculty Flexibility
- We hosted a national conference on faculty flexibility, with key national figures and attendees from across the country. More than 60 faculty and administrators from ISU attended. The conference received coverage in the national media and mention at other conferences.
- Faculty Fellow developed key materials on work-life balance to promote flexibility in faculty careers.

Institutionalize positive change
- We strengthened our efforts at the college level through college councils. Councils of two colleges united to hold joint ADVANCE Coordinating Council meetings.
- We worked with a campus network of partners to effect passage of a “modified duties” policy in the Faculty Senate for faculty who are new parents.
- We built new on-campus initiatives for additional funding, including the preparation of an I3 (Innovation through Institutional Integration) proposal to NSF.
- We made presentations on our program to 15 non-focal departments around campus.
- Analysis of the AAUDE Faculty Satisfaction Survey was instrumental in helping us make the case for the transformation we seek and provided the PI, in her capacity as Associate Provost, important data that helped justify an “integrated” approach to faculty recruitment, retention, and advancement.
- We engaged in dissemination at national meetings, in publications, and in the media. Our co-PI team visited other campuses to disseminate information regarding the ISU ADVANCE program.

Year 4 Activities and Accomplishments
During Year 4, we identified the theme of ADVANCE-ing Faculty: Pathways to Promotion and Leadership. Important activities and accomplishments in Year 4 were:
- Program organization and evaluation
  - An External Site Visit from NSF helped us refine our priorities and initiatives.
  - The ADVANCE Council expanded to include representatives from partner programs as well as experts in the recruitment and retention of underrepresented minorities to STEM. Council meetings served as effective forums to discuss key issues of sustaining the program, defining ADVANCE work in the context of severe budget cuts, and recruiting underrepresented minority faculty.
  - We finalized an evaluation plan and logic model in partnership with an evaluation and assessment expert in the Office of the Executive Vice President and Provost.
- Addressing barriers in departments through Collaborative Transformation
  - We initiated the Collaborative Transformation process in Round 3 departments and brought on new ADVANCE Professors in Round 1 departments.
  - We produced a second synthesis report on Collaborative Transformation, based on findings in the six departments in Rounds 1 and 2.
  - ADVANCE Equity Advisors worked with key department chairs to present a forum on strategies to improve department climate. Attendees included the University President, Executive Vice President and Provost, and Deans, as well as chairs.
- Addressing barriers at the college and university levels
  - Transparency
The Faculty Fellow for Year 4 gathered data on promotion from Associate to Full Professor and offered a forum to faculty and administrators to discuss data and possible interventions to ensure timely promotion.

- **Isolation**
  - The ADVANCE Scholars program initiated peer-mentoring meetings for the scholars.

- **Mentoring**
  - The ADVANCE Scholars program matched four new underrepresented minority faculty with external Eminent Scholars.
  - Dr. Caroline Turner came to campus to speak about mentoring for underrepresented faculty and we recruited a graduate student to work with the Scholars program.

- **Faculty Flexibility**
  - We posted on our website *ISU Policies and Guidelines for Flexible Faculty Careers: Resources for Chairs & Deans*, which was prepared by the Year 3 Faculty Fellow.
  - The Year 3 Faculty Fellow held two events to introduce chairs and faculty to the document.

- **Institutionalize positive change**
  - We created a brochure to apply the lessons of ADVANCE department-level transformation to the broader issues of budget cuts. “*Making the Most of Upcoming University Transitions: Perspectives from the ISU ADVANCE Program*” was well received by faculty and administrators.
  - The University received an I^3 award (Innovation through Institutional Integration) from the NSF (PI and co-PIs included ADVANCE personnel). Our I^3 initiative, “SP@ISU: Strengthening the Professoriate at ISU,” drew on strengths of ISU ADVANCE and helped us design ways to sustain ISU ADVANCE.
  - We convened a “Taskforce on ISU Department Leadership” to enhance the success and diversity of department chairs at ISU.

**Year 5 Activities and Accomplishments**

During Year 5, we identified the theme of *ISU ADVANCE: building on a solid foundation*. We focused on this theme as we prepared for institutionalization of key elements of our programs after NSF funding expires. Important activities and accomplishments in Year 5 include:

- We focused on planning for sustaining our accomplishments with internal and external evaluation.
  - We administered a series of surveys of our stakeholders in preparation for a site visit by our External Evaluators.
  - Two reports were prepared to guide our progress and plan for institutionalization in our final year.
    - *Key Areas for Institutionalization and Sustainability beyond Year 5 of the Program* was written by the co-PI team and Equity Advisors in preparation for a visit from External Advisors.
    - *Recommendations for Sustaining ISU ADVANCE Progress Beyond 2011* was written by the Year 5 Faculty Fellow.
  - We hosted visits by our External Advisors and our External Evaluators, and received reports and advice on institutionalizing elements of our program.
- Addressing barriers in departments through Collaborative Transformation
We completed the Collaborative Transformation process in Round 3 departments with completion of departmental reports, presentation of report findings, and development of strategies for enhancing departmental environments.

We produced a final synthesis report on Collaborative Transformation, summarizing findings from all nine focal departments and findings from the report were shared with department chairs.

Equity Advisors and ADVANCE Professors coordinated the final Council meeting, at which they presented the successes of Collaborative Transformation (CT) and recommendations for extending CT to additional departments.

- Addressing barriers at the college and university levels:
  - Transparency
    - The Faculty Fellow from Year 4 gathered data on promotion from Associate to Full Professor and led workshops for department chairs, deans and faculty to discuss data and possible interventions to ensure timely promotion. Brochures were produced to facilitate discussions about promotion.
  - Isolation
    - The ADVANCE Scholars program continued peer-mentoring meetings.
  - Mentoring
    - The ADVANCE Scholars program continued to support travel for ISU ADVANCE Scholars with external Eminent Scholars.

- Institutionalize positive change
  - The plans presented and the conversations that occurred in Year 5 focused our attention on the most valuable components of ISU ADVANCE for the university.

Year 6 Activities and Accomplishments

At the end of Year 5 (May 2011), the ISU ADVANCE Program requested and was granted a no-cost extension to complete the responsibilities of the program that were not completed. We achieved progress on these tasks in Year 6:

- **ADVANCE Scholar Program**: We funded the final trips planned by ISU Scholars and their Eminent Scholars, sponsored a networking lunch for ISU Scholars and prepared a report on their activities.

- **External Evaluation**:
  - Prepared materials for final summative evaluation report which was prepared by the External Evaluators in winter 2012
  - Documented changes across the university during ADVANCE, including institutionalization plan, plans for Collaborative Transformation for future departments, flux chart report on recruitment and retention, and recruitment data analysis.

- **Search committee training**
  - Revised search resources on the Website and CD.

- **Department chair leadership** – received report from and study of department chairs.

- **Final Report was prepared**.

In addition to completing the responsibilities of the program for NSF, we identified several tasks for Year 6 related to institutionalization of ADVANCE progress. These included:

**Workshops and Training**:
- We contributed to workshops for department chairs on faculty searches and department culture.
- Equity Advisors delivered search committee training sessions for faculty searches as well as for the searches for President and Dean of Business.
College Equity Programming

- The ADVANCE office served as the “hub” for ISU ADVANCE activities centrally and in the colleges by coordinating the Equity Advisors in regular meetings, initiating training and orientation for new EAs and support the EAs in their development and delivery of search committee training within their colleges.

Data Reporting and Unit Reviews

- We coordinated with Institutional Research, HRS and EVPP staff regarding faculty data and reporting system for data on recruitment and retention of faculty.
- We continued to work on the development of the “scorecards” on progress regarding recruitment and retention of women and underrepresented minority faculty.
- We continued to work with all parties to develop an efficient and effective system for sharing data and making data-driven decisions.

Dissemination and Community

- We determined the best ways to make ADVANCE materials available to the ISU community, including reorganizing the Web site so that materials are accessible by the audience/function (Department Chairs, Searches, Work-life, etc).
- We archived publications and presentations from previous years, including poster PDFs and presentations for EAs and others to use
- We gave presentations at disciplinary meetings and prepared publications for peer-reviewed literature.

Outcomes, Measures of Success, and Future Objectives

We used a broad range of metrics to document the outcomes and measure the successes of our program. Two of the major outcomes included 1) changes in the working environment (e.g., cultures, practices and structures of the university), and 2) demographic changes (e.g., the number of women in leadership positions or the number of women faculty in STEM that are promoted or tenured in a particular year). Some of these metrics of success, particularly for the demographic measures, are quantitative, including measures of total numbers of women faculty by rank, the rate of advancement of faculty through ranks over time, or the numbers of women in leadership positions. (Demographic data for 2011 are found in Appendix 4. Data from previous years, on which the figures below are based, were reported in Annual Reports for Years 1-5). Metrics of success that measure the working environment, however, can be either qualitative, such as changes in departmental governance or university policy or quantitative, such as changes in survey results that document differences in faculty perception of university and departmental climate before compared to after the ISU ADVANCE program. We have summarized our outcomes in terms of both quantitative and qualitative metrics of success. We have also identified a list of future objectives, because at any academic institution there are inevitably more accomplishments that can be made in the pursuit of promoting diversity. Below we have described some of the major outcomes of our program, some of the most important measures of success, and future objectives that we have identified as a result of ISU ADVANCE. Each of these topics is organized by the original goals that we set out to achieve in our proposal to NSF.

Goal 1: Overcome known barriers to the advancement of women faculty in STEM disciplines

Work at all levels (department, college, and university) was directed to the first goal, to overcome barriers to STEM female faculty. ISU's Institutional Transformation efforts were
focused on 1) enhancing career flexibility, 2) increasing the quality and quantity of mentoring, 3) decreasing isolation from colleagues, and 4) increasing transparency. Disseminating qualitative and quantitative information about these barriers and then examining ways to minimize their effects occurred through all five years of the ISU ADVANCE Program. As a result of these dissemination activities, ISU made several changes to its policies and practices. We also became involved in two major nationwide surveys to document campus climate (COACHE faculty satisfaction survey (Collaborative on Academic Careers in Higher Education, for tenure-eligible faculty) and AAUDE faculty satisfaction survey (American Associations of University Data Exchange)). Some of these outcomes are as follows:

**Overcome Barrier: Enhance Career Flexibility**
The ISU ADVANCE Program strongly supported increased career flexibility for faculty members, including increased awareness of and support for existing university faculty flexibility policies. ISU ADVANCE hosted a national conference in Year 3 (2008) on faculty flexibility, which had over 150 attendees from across the U.S. and more than 60 from the Iowa State community (see Year 3 Activities and Accomplishments). This conference highlighted Iowa State's recognition of the support for policies that address flexibility in the workplace, including extension of the probationary period, or "stop the tenure clock," (in place at Iowa State since 2002), part-time positions for tenured faculty (adopted in 2006, prior to the ISU ADVANCE Program), and modified duties for the arrival of a child.

In 2008, members of the ISU ADVANCE Program contributed to the development of a proposed policy for Faculty Modified Duties Assignment (FMDA) for the arrival of children. This policy was approved by the Faculty Senate, but has not yet been approved by the Board of Regents due to the tight fiscal conditions during the past five years. Nevertheless, department chairs are encouraged to develop appropriate accommodation plans with faculty and staff when there is a need to care for family members. Resources and templates are provided on the Provost’s website and are regularly shared at workshops for department chairs.

Communication about existing policies that support faculty flexibility, such as the extension of the probationary period, was important to increase knowledge and acceptance of these programs. During Year 3, the Faculty Fellow developed a handbook for Deans and Chairs that addresses important issues and resources related to faculty flexibility. In 2009, she presented several workshops to increase awareness of these policies and the importance of their use. In fall 2010, data were presented to the Department Chairs Cabinet which showed that 102 faculty had used the policy between 2004-2010. The policy was used for a variety of reasons, the most common of which was related to family and life change events. Both women (57%) and men (43%) used the policy, although women used it proportionately more, as only 35-40% of ISU Assistant Professors were women during that time period. The presentation to the Department Chairs Cabinet emphasized the importance of ensuring that all department chairs are aware of the tenure-clock extension policy and share it with faculty. In addition, all probationary faculty should be aware of the policy. These themes were emphasized to a meeting of all department chairs in May 2011 during a review of the 2010-11 Promotion and Tenure results. All faculty who were considered for tenure in 2010-11 were approved, and possible contributing factors were examined, one of which was the increased use of flexible faculty policies. Resources and handouts were provided to the chairs to help them implement these policies in their departments, including a statement on extension of the tenure clock, guidelines for accommodating employees' needs to care for family, and the template for a faculty work plan for arrival of a child, all of which appear on the Provost’s website.
During the review of the results of the tenure cases in 2010-11, the Provost’s office determined that ISU did not have an adequate database to determine what the effect of tenure-clock extensions was on the reviews that were conducted that year. As a result of these limitations of the current personnel database, an Associate Provost and the Associate Director of Institutional Research, both ADVANCE co-PIs, developed a plan to incorporate information on tenure clock extensions into the central personnel database of faculty. This plan was approved in fall 2011 and in the future data on the use of tenure-clock extensions will be collected for all tenure-eligible faculty. Analysis of outcomes will be possible going forward. This change in policy will strengthen the ability of the Provost’s office staff to communicate with faculty and department chairs about this flexible career policy.

The COACHE (Collaborative on Academic Careers in Higher Education) survey was administered in 2005 to identify a baseline of satisfaction for pre-tenure faculty university-wide. It was re-administered in 2009 to determine progress. Findings from the COACHE job satisfaction survey of pre-tenure faculty show that there has been an improvement in the suitability of Iowa State as a family-friendly institution. Comparing the 2005-06 and 2009-10 administrations of the survey, there was an increase in the mean response to the question about whether ISU was doing all it could to make raising children and the tenure-track compatible (Figure 2). This was true for the institution as a whole and to the question that focused on departmental colleagues, although only the question dealing with institutions was statistically significant.

Figure 2. Degree of agreement with the question “The institution (or the department) does all it can to make raising children and the tenure-track compatible.”

When examining the responses of males and females to the questions about the institution and department’s support for the compatibility of raising children and being on the tenure-track, we found an intriguing pattern. When questioned about the institution, males respond more favorably than females in both the 2005-06 and the 2009-10 administrations of the COACHE survey (Figure 3).
When questioned about the department’s support, females respond more favorably than males in both the 2005-06 and the 2009-10 administrations of the COACHE survey (Figure 4):

We did not have the capacity to statistically analyze these patterns and it is likely that most of the gender differences are not statistically significant, even though they are consistent across years.
Overcome Barriers: *Increase Mentoring, Decrease Isolation*

**Networking to decrease isolation**
During the 6 years of the ISU ADVANCE Program, 27 workshops and networking events were held, which provided opportunities for women faculty to hear presentations on topics of interest, meet one another, and discuss topics of mutual interest. Networking and mentoring were not the focus of many of these events; nevertheless, the gatherings provided opportunities for interaction among the participants. There were a few events specifically designed to provide networking opportunities, especially among faculty within colleges. These breakfast or lunch gatherings were generally well attended and received positive evaluations from the participants. The final networking event, held during Year 6 and sponsored by the Executive Vice President and Provost, the PI of the ISU ADVANCE Program, was a luncheon and workshop for women faculty in STEM disciplines. The topic of the event was “Reflecting on ISU ADVANCE: How are the faces in the mirror different?” Following a brief presentation on milestones of the ISU ADVANCE Program, participants discussed questions that addressed ways ISU has changed and what the priorities should be in the future to sustain the accomplishments of the ISU ADVANCE Program. The event was well attended with 57 STEM women faculty participating from focal and non-focal departments. Most participants were tenured or tenure-eligible and full professors attended in greater proportion than their representation in the STEM women faculty: of the 48 tenured/tenure-eligible women, 66% were full professors, whereas about 34% of STEM women faculty at ISU are full professors. There was an overall consensus of an improvement regarding isolation and several people requested that networking events be continued after NSF funding ends. The Provost's office is planning to host additional networking event in the future and Equity Advisors will sponsor networking events in their colleges.

**Mentoring throughout the career**
When attendees of the STEM women’s lunch were asked how ISU has changed with respect to mentoring, opinions are all positive and appreciative of mentoring per se. Respondents felt there was an improvement in the clarity of expectations for mentoring and it was noted that some (but not all) departments have established formal mentoring policies. Comments were neutral and negative regarding further development and expansion of the ISU mentoring program. Respondents commented that older faculty are not aware of mentoring policies, the importance of mentoring, and that formal mentoring from associate professor to full professor is needed. Specific recommendations for improving mentoring included: continue mentoring throughout entire academic careers, develop mentoring networks, implement mentor training (to avoid mentoring based on one’s own agenda), increase encouragement of women as mentors, and implement Provost’s Office coordination of mentors.

During the course of the ISU ADVANCE Program, the Provost’s Office has coordinated a mentoring program for new faculty, although some aspects of it have been revised during that period. To assess the effectiveness of the program from the perspective of the mentees and mentors, a survey was conducted and analyzed at the end of Year 6. Although the mentoring program and the survey were not officially sponsored by the ISU ADVANCE Program, the findings are valuable as an assessment of perceptions of mentoring at ISU. Overall, faculty comments about the program were very favorable; both mentors and mentees thought they had realistic expectations for the mentor/mentee relationship. Faculty tended to find the topics of promotion and tenure, research expectations, department culture, time management, and supervising graduate students as the most useful. Almost half of all mentees reported not discussing options for family leave or tenure clock extension with their mentor. For some new faculty, this topic may not be relevant. However, we also know from pre-mentor survey responses that many mentors felt uncomfortable (due to lack of knowledge or the private nature
of the topic) about discussing family leave options. Several mentees had indicated that they did not feel comfortable discussing leave options so soon after starting a new job. The Associate Provost for Academic Personnel will use these findings to inform changes to the program in the future. In the 2012-13 academic year, two workshops for new faculty are being planned on flexible faculty policies.

ADVANCE Scholar Program for women faculty of color

To help overcome the barrier of inadequate mentoring for STEM women faculty of color, the ISU ADVANCE Scholar Program was launched in 2008. This program was designed to foster mentoring and collaborative relationships between ISU STEM women faculty of color and Eminent Scholars in their fields. ADVANCE supported visits between ISU Scholars and Eminent Scholars, which involved mentoring time, presentations, and research collaboration. Below is a summary of the number of Scholars that participated and their travel activities:

<table>
<thead>
<tr>
<th>Year</th>
<th>ISU Scholars</th>
<th>New ISU Scholars</th>
<th>Returning ISU Scholars</th>
<th>Visits by ISU Scholars</th>
<th>Visits by Eminent Scholars</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008-2009</td>
<td>5</td>
<td>4</td>
<td>6</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>2009-2010</td>
<td>4 new ISU Scholars</td>
<td>4 returning ISU Scholars</td>
<td>6 visits by ISU Scholars</td>
<td>3 visits by Eminent Scholars</td>
<td>3 visits by Eminent Scholars</td>
</tr>
<tr>
<td>2010-2012</td>
<td>6 returning ISU Scholars</td>
<td>6 visits by ISU Scholars</td>
<td>3 visits by Eminent Scholars</td>
<td>3 visits by Eminent Scholars</td>
<td>3 visits by Eminent Scholars</td>
</tr>
</tbody>
</table>

Many of the ADVANCE Scholars realized professional success during the time they participated in the program. Four of the six ADVANCE scholars reported receiving a promotion—three were promoted to Associate Professor with tenure and one was promoted to Full Professor. Four respondents received college, university, or external awards during the course of their participation in the ADVANCE program. The most noteworthy was the ADVANCE Scholar who received the Presidential Early Career Award for Scientists and Engineers at the White House. She also received a National Science Foundation Early Career Award, and the ISU Early Achievement in Research Award. She acknowledges the support from the ADVANCE Scholar Program as contributing to her early career success. One ADVANCE scholar received her departmental Research and Teaching Excellence Award. One received the Rising Star award by her national society, as well as the diversity award in her college. One received a prestigious prize from her national society; her Eminent Scholar was one of the letter writers for the award. Two ADVANCE Scholars reported that their Eminent Scholars served as a recommender or helped edit drafts for the award.

We conducted a survey of the ISU ADVANCE Scholars at the end of Year 6 to evaluate the types of participation, the value that the Scholars placed on the program and to obtain suggestions for the future, if the program continues (see Appendix 3 for the full results of the survey). In addition, at the end of the 2012 academic year we hosted an informal luncheon for the ISU ADVANCE Scholars so that they could network with their colleagues in the program. All took the opportunity to collaborate and get advice, and several started joint projects with the Eminent Scholars. As the program went on, the scope and number of projects seemed to increase within mentor pairs. The ISU ADVANCE Scholars identified the following benefits of the program:

- Receiving career advice, mentoring, encouragement, and funding source advice from Eminent Scholars both during and beyond the program.
- Providing career advancement advice and support for women of color.
- Engaging in reciprocal e-mail and/or phone contacts with Eminent Scholars.
- Collaborating on funding proposals, manuscripts, and/or reviewing draft funding proposals with Eminent Scholars.
- Networking with Eminent Scholars’ colleagues.
• Collaborating in laboratory work and/or research-related interactions with Eminent Scholars’ postdocs, graduate students, and staff members.
• Hosting Eminent Scholars’ ISU visits as part of departmental seminar/colloquium series.
• Broadening scholar’s opportunities for awards, research presentations, and promotions.
• Increasing inter-university cooperation and collaboration.
• Facilitating the communication of cutting edge research and data analysis techniques.

Based on the 2012 survey and those conducted in earlier years, we learned that all responding ADVANCE scholars said they would recommend the program to colleagues.

**Overcome Barriers: Increase Transparency**

Lack of transparency with regard to departmental, college, and university cultures, practices, and policies can create significant barriers to the success of women in STEM. Unintentional bias may affect the potential to recruit women in STEM departments. Having candid conversations about the criteria to be used in evaluating candidates *prior* to a faculty search can improve the equity of candidate evaluations at later stages of the search. After recruitment, transparency of culture and policies can also aid in *retention* of women in STEM. For example, when women comprise a small percentage of the departmental population, they may be excluded from informal networks where important information sharing occurs. Even if this exclusion is unintentional (e.g., due to differences in choices of extracurricular activities), lack of information about how an institution works can have profound effects on a faculty member’s success. Alternatively, there may be a lack of transparency because no culture has yet evolved within a department to deal with a particular issue (e.g., there may be no established expectation for what is an appropriate time to take for parental leave if there have been no pregnant women in the department). Increasing transparency about policies and expectations relative to faculty flexibility, work-life balance, and promotion can significantly increase the comfort level at which a new assistant professor tackles these challenges.

At the college and university levels (“top-down” approach), the ISU ADVANCE Program sponsored workshops and discussions to inform the faculty of ways that culture, practices, and structures can enhance and/or hinder recruitment, retention, and advancement. We even engaged the ISU community in Readers Theatre productions. Topics of these workshops and discussions included:
• increasing flexibility in faculty careers
• enhancing the academic work environment
• recognizing and reducing unintentional bias
• ways faculty search committees can increase diversity in candidate pools and avoid unintentional bias during the interview and selection processes
• pathways to promotion to Full Professor

Across the five years of our grant, eleven workshops were held, with an average of 52 participants per workshop. ISU ADVANCE also developed resources, including an informational CD to assist in faculty searches. Over 200 CDs were distributed during and following these workshops.

We evaluated the success of our efforts by comparing differences in responses to the COACHE faculty satisfaction survey over time. This provides an indication of changes in transparency that the faculty perceived during the period of the ISU ADVANCE Program. Comparing responses in 2005 and 2009, several areas showed improvement, including:
• Consistent messages about the tenure process
• Stop the tenure clock policy
• Spousal/partner hiring program
• Institution makes having children & tenure-track compatible
• Institution makes raising children & tenure-track compatible

We received very positive feedback from COACHE Staff. For example, in an email to the Provost’s office, received May 13, 2010, COACH staff noted “[We] were just amazed at your results…. There was not a single item in the survey where your responses were significantly worse than the first administration and the number of areas of concern were generally low.” Importantly, ISU improved in the communication of a consistent message regarding the tenure process from senior colleagues (Figure 5). Overall, the areas that ISU ADVANCE and the Provost’s office focused on showed positive trends. And even more importantly, there were NO worsening trends in tenure-eligible faculty satisfaction between 2005-2009, showing that ISU has accomplished many changes consistent with our ADVANCE goals.

Figure 5. I have received consistent messages about the requirements for tenure from senior colleagues:

![Mean Score Graph](image)

However, there were also some areas that the COACHE survey identified that could be targeted for improvement at ISU. They included:
• Communicate more clearly the standards for Promotion and Tenure
• Provide training and best practices related to annual performance evaluations
• Increase diversity of faculty by improved search committee training
• Address faculty flexibility for child care/elder care
• Provide continued training for department chairs who have pivotal role in creating a positive departmental culture and fostering collegiality

In summary, ISU ADVANCE efforts have helped to increase transparency with regard to many important issues related to recruitment and retention of women in STEM, but there is also room for future institutional transformation.
Goal 2: Identify and eliminate department specific barriers to the advancement of women faculty in STEM disciplines

The second goal, Identify and Eliminate Department Barriers, has been the focus of the Collaborative Transformation (CT) process. Facilitators, led by the Research Director, worked with department faculty to identify issues and to develop action plans to improve their departments. Key agents of change were the ADVANCE Professors, who worked in close collaboration with the ADVANCE research team, Equity Advisors, the Equity Advisor /ADVANCE Professor working group, the department chair, and departmental faculty. The Collaborative Transformation process has been the primary vehicle through which department specific barriers have been identified and targeted for change. This has been a “bottom-up” process that targets specific departments that will then influence the university as a whole.

As part of the CT process, focus groups and interviews identified each focal department’s barriers. Departments then developed plans to change their structures, cultures, and practices that help increase recruitment, retention, and advancement of diverse faculty. In the end, the number of faculty that participated in the CT process represented approximately 30% of STEM faculty. Nine focal departments participated; all nine department chairs and 278 faculty members were interviewed (74% of faculty).

In Table 1. below we have summarized the Collaborative Transformation activities that occurred during each year of the ADVANCE grant. It is important to note that we started working with three focal departments in Year 1 and increased this to a total of nine focal departments by Years 4-5. Synthesis reports, university-level presentations, and reviews of governance documents occurred in later years as the process moved forward. The level of intensity of work that was accomplished during the period of grant funding was extensive, and it was dependent upon the many individuals whose time was bought out as part of the ISU ADVANCE project. Three departments was plenty to keep the team busy during the first two years as we initiated the Collaborative Transformation project. As CT protocols were developed, ADVANCE Professors learned from each other and the effort to conduct CT for each individual department was slightly less. However, the time required to conduct interviews, transcription, and analysis remained the same.
Table 1. History of Collaborative Transformation in Departments Timeline

<table>
<thead>
<tr>
<th>Departmental Cohort</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 4</th>
<th>Year 5</th>
</tr>
</thead>
</table>
Seven themes were identified across the nine focal departments that provided direction for administrators and faculty to improve the quality of faculty members’ experiences in the departments. These themes were as follows:

1. Collegiality
2. Recruitment and hiring
3. Clarity of criteria and consistency in feedback
4. Mentoring
5. Work-life balance
6. Responsibilities (e.g. teaching)
7. Facilities and support staff

This information was then used by departments to develop implementation plans to change their structures, cultures, and practices in a way that allows for increased recruitment, retention, and advancement of diverse faculty.

Some examples of the successes of Collaborative Transformation are as follows:

- Attention to gender and diversity factors during faculty searches
- Increased attention to mentoring and interaction among faculty.
- Clarifying for faculty the departmental expectations and requirements for tenure/promotion via changes in governance documents.
- Discussion of and steps toward faculty-flexibility policies.
- Open communication about work-life balance.
- Creating guidelines describing how the arrival of children affects teaching and research responsibilities
- Changing the time of departmental meetings to accommodate child care and school schedules
- Increasing transparency in assignment of teaching responsibilities

The CT process has had a progressive impact on ISU faculty in STEM departments. In 2006-2007 there were 80 participants, in 2008-2009 there were 201 participants, and in 2010-2011 there were 278 participants. There were measureable changes in number and percentage of women faculty from 2006 to 2011 (see Figure 8 under discussion of Goal 3 below): The successes and lessons learned from the CT project have been shared during several university-wide workshops and during the leadership workshops for department chairs. In addition, a brief handbook has been prepared for department chairs that emphasizes the importance of a positive culture for successful faculty.

The success of the Collaborative Transformation project has been noted by the Equity Advisors and ADVANCE Professors, during the final Council meeting, and by the External Evaluators, based on their interviews with faculty and administrators. This key “bottom-up” component of the ISU ADVANCE Program has been attributed with contributing to improvements in department climate and with providing an opportunity for faculty to reflect on department dynamics, goals, and challenges. Because of the resource intensive nature of the CT project, it has been challenging to develop a feasible way to extend CT to additional departments after NSF funding expires. During discussions with the Internal Advisory Board (which includes the Provost and Deans) in Year 6, a consensus was reached that components of CT should be incorporated into regular departmental reviews, which occur every 5-7 years. This plan was supported by Provost (and ADVANCE PI) Elizabeth Hoffman and by her successor, Jonathan Wickert, who as Dean of Engineering 2009-2012, was a member of the Internal Advisory Board that endorsed the plan. One of the major responsibilities of the ADVANCE Fellow who was
appointed in September 2012 is to work with the Collaborative Transformation experts to implement a modified version of CT in several departments that will have their external reviews in 2014.

**Goal 3: Increase the representation of women and underrepresented minorities at senior faculty and leadership ranks**

**Women in University Leadership:** During the period of the ISU ADVANCE Program, ISU recruited a critical mass of top administrators who are committed to improving the representation and status of women and underrepresented minorities. One of the women who came to Iowa State University at the beginning of the ISU ADVANCE Program was the Executive Vice President and Provost (EVPP), Elizabeth Hoffman. During the award period, she provided strong leadership and support for women faculty and administrations. During the final two years of the NSF award, she served as Principal Investigator. Between 2006 and 2011, the percentage of university-wide higher level academic leadership positions increased from 25% women to 60% women (Figure 6). The percentage of women deans increased from 38 to 60% and will increase to >60% in 2012 with the arrival of the new LAS Dean, who is also a woman and was a co-PI at another ADVANCE institution. The number of associate deans fluctuated between 25 and 40% over this same time period but some of these individuals moved up to higher administrative ranks.

![Figure 6. Changes in the percentage of faculty in leadership positions who are women from 2006-2011, the period of the ISU ADVANCE Program](image)

**Women Department Chairs:** The ISU ADVANCE Program has especially focused on advancement of women to department chairs. Women have traditionally been less well represented among department chairs, however between 2006 and 2011 the number nearly doubled going from 11% in 2006 to 21% in 2011, approaching the percentage of women Full Professors university wide (Figure 6 above). The increase in women department chairs has been especially dramatic in the STEM departments (Figure 7 below). The representation of women chairs in STEM departments exceeds the percentage of STEM women Full Professors, whereas in non-STEM fields, the percentage of women chairs is much lower than the
percentage of women Full Professors. Representation of STEM women department chairs is even higher than shown in the figure; in 2012, two additional women chairs were added, both in the Engineering college, where four of eight chairs were women in 2012.

Figure 7. Percentage of Full Professors and Department Chairs in STEM and non-STEM disciplines who are women, 2006-2011. In STEM departments, women were chairs in about the same proportion as they were Full Professors. In non-STEM departments, women were chairs in much lower proportion than they were Full Professors.

A Department Chair Taskforce, which was appointed after the NSF Site Visit following Year 3, continues to meet to develop a plan for increasing diversity among the chair ranks by building up our pipeline. In spring 2012, a faculty member and graduate student team conducted a survey of department chairs and deans about the role of the chair. The Taskforce will use the survey results to inform their continuing work in 2012-2013.

Because the pipeline to leadership includes promotion to Full Professor rank, we have monitored the status of Full Professors at ISU. In 2011, 35% of those promoted to Full Professor were women—clearly higher than the current percentage (20%) of women Full Professors. Many of these new leaders are committed to the ISU ADVANCE Program goals and several were involved in the ADVANCE program as chairs of focal department, deans, ADVANCE Professors, or Equity Advisors. These recent changes are positive and some of the "institutionalization" of ADVANCE may be accomplished via advancement of individuals trained in the goals of ADVANCE.

**Representation of Women Faculty:** The percentage of women in STEM disciplines increased at all ranks. It is also important to highlight the fact that these improvements in the representation of women in STEM occurred despite financially challenging conditions. In Figure 8, we have included the time frame from 2001-2011 to capture the time period both before and after the ISU ADVANCE grant. During 2009-2011 many departments experienced significant cuts in resources and the number of faculty searches was limited. The average number of faculty hired at ISU each year from 2001-2009 was 76, yet only 44 and 63 were hired in 2010 and 2011, respectively. STEM and non-STEM departments had fewer hires than the historical
averages during these years. However, despite these odds, the percentage of women Assistant Professors in STEM increased from 29% to 32% from 2006-2011. The percentage of women Associate Professors varied during 2006-2011, but it is important to note that there was a shift in this cohort into the Full Professor rank. The percentage of women Full Professors in STEM increased from 11% to 15% from 2006-2011. These changes occurred during a time when the total number of STEM faculty increased slightly and the number of men was steady. Comparing 2006 to 2011, there has been an increase in STEM women faculty at ISU (145 to 156 = an 8% increase) compared to men faculty (623 to 621 = no change). Comparing 2001 to 2011, the increases are even more dramatic for women Associate and Full Professors.

Figure 8. Changes in the percentage of tenured and tenure-eligible STEM faculty who are women from 2001-2011. The vertical line indicates the beginning of the ISU ADVANCE Program, August 2006.

Recruitment and Advancement of Women in Focal Departments: Finally, three metrics showed dramatic differences when focal departments were compared to non-focal departments (Figure 9). Between 2006 and 2011, the number of women faculty members, women Assistant Professor hires, and women that advanced from Associate Professor to Full Professor exhibited much larger positive changes in focal departments as compared to non-focal STEM departments. We attribute at least a portion of this success to the intensive Collaborative Transformation efforts which increased faculty awareness of the importance of these issues.
**Underrepresented Minority Faculty:** Following the third year site visit by NSF, the ISU ADVANCE Program pledged to compile data on the number and percent of underrepresented minority (URM) faculty at ISU. We focused on three ethnic/racial groups in the STEM disciplines: Asians, whites, and underrepresented minorities, defined by NSF (African Americans, Hispanic Americans and American Indians including Native Alaskans, and Native Pacific Islanders).

Since 2000, the number (Figure 10) and percent (Figure 11) of URM STEM women has changed little and remains low, ranging from 5 to 9 women and averaging ~5% of STEM women faculty. There is no consistent improvement in the number or percentage of underrepresented minority women faculty in STEM. The number and percentage of Asian women is also low (Figures 10 and 11), ranging from 12 to 19 women and averaging ~12% of STEM women faculty. Although Asian women are not an underrepresented minority, they are nevertheless a low percentage of the total faculty. When considering URM and Asian women as a percentage of the entire STEM faculty, they represent <1% and ~2.5% respectively (data calculated but not graphed). Many of the issues of isolation facing URM women STEM faculty are similar for Asian women STEM faculty at ISU.

Figure 10. Number of Asian and underrepresented minority STEM women faculty 2000-2011.
Since 2000, the number (Figure 12) of URM STEM men has changed little and remains low—ranging from 15 to 20 men and averaging ~2.5% (Figure 13) of STEM men faculty. The number and percentage of Asian men in STEM, on the other hand, increased between 2000 and 2011 from 87 (13%) to 143 (23%).
Focus on Recruitment and Retention:
To support our progress toward meeting Goal 3, increasing the representation of women and minorities in senior and leadership ranks, we focused some of our work on issues of recruitment and retention. Our recruitment efforts included preparation and dissemination of faculty search resources and working with ISU administrative offices to evaluate data on candidates for faculty positions. Our retention efforts included attention to defining reasons why faculty members are leaving the institution. ISU had been conducting exit surveys of faculty resigning from ISU, but these data have not been compiled or analyzed. Given these identified limitations, ISU has modified their policies in the following ways with the goal of improving recruitment and retention efforts:

Recruitment
In Year 2, as we developed resources to support our theme of Unintentional Bias, members of the Council recognized that the campus would benefit by sharing best practices and information about unintentional bias with colleagues who were conducting faculty searches. The Provost’s Office invested funds to support a Faculty Fellow to develop resources and presentations for use at ISU. We benefited from the materials that had been developed by many ADVANCE programs prior to our work. The resulting resources, a series of worksheets, checklists, and short presentations, were posted on our website and published on a CD for distribution to the campus community. These search resources, which were recently updated, have become a signature product of the ISU ADVANCE program. During Years 4 to 6, the college Equity Advisors offered presentations to search committees for faculty and administrative positions. Search committee trainings based on the ADVANCE work are planned to become a standard practice at Iowa State. In addition to sharing information about best practices and unintentional bias with search committees, members of the ADVANCE Program have worked to improve access to and the use of data to help search committees evaluate their effectiveness. The Offices of Human Resources (HR) and Equal Opportunity and Compliance (EOC) obtain
demographic data on job candidates who opt to fill out the optional form. They also require each department to summarize data on search protocols and candidates considered at each step of the search process before job offers can be made. However, these data are not analyzed in the context of the available pool of professionals available nationwide. Several representatives of the ADVANCE and the Office of the Provost are working with HR and EOC to summarize data in a way that will allow search committees, departments and colleges evaluate whether the search process has achieved the desired goals of recruiting a broad pool of candidates. This work is ongoing and is a high priority for the Office of the Provost.

Retention
Faculty who resign or leave Iowa State for reasons other than retirement are asked by the Provost’s Office to complete an electronic survey sharing their feedback on their experience as a faculty member at Iowa State and their reasons for leaving. In addition, we offer the faculty member the opportunity to have a face-to-face exit interview with the Provost or an Associate Provost. Prior to 2010, faculty could either fill out a paper survey OR have an exit interview. Since 2010, all faculty are requested to complete the electronic survey as the primary data collection method, with the exit interview as an additional option once the survey is complete.

For the period 2003-2010, we have a significant body of qualitative data based on summaries of the exit interviews. The provost’s or associate provosts’ written interview notes were used annually to develop a general overview of responses to individual questions. This general overview was then reviewed to identify themes in faculty comments.

Overall the exit interview and survey data provide similar information. The exit interview data offer a more detailed understanding of individual faculty members’ experiences and can help to identify specific issues that warrant attention. A review of the general themes below reveals aspects of the faculty experience that ISU can address.

During 2003-2010, the top reasons faculty gave for leaving Iowa State were: another institution offered a salary increase; they were offered a new position/opportunity; family reasons; and environment. The most frequent response when asked what Iowa State could have done to retain the faculty member was “provide a matching salary”.

Survey respondents identified dissatisfaction with department leadership as the top negative aspect of their ISU experience. The best aspects of their faculty experience at ISU included colleagues and collegiality; collaboration; quality of students; and institutional support.

Goal 4: Institutionalize positive change across the university
The ADVANCE Co-PI team, Equity Advisors, Faculty Fellow and administrators spent a substantial portion of Years 5 and 6 considering options for institutionalizing components of the ISU ADVANCE program. Meetings were held in small and large groups and ample opportunities were provided for feedback. Proposals and white papers were prepared by the co-PI team, Equity Advisors and Faculty Fellow and a presentation was developed by the ADVANCE Professors. The ideas laid out in these documents, together with the summative report from the External Evaluators, were used by ISU administrators, especially outgoing Provost Hoffman and incoming Provost Wickert, to provide a foundation for the ADVANCE Program following the end of NSF funding. Here we summarize the findings of the External Evaluators and document the components of the ADVANCE Program that have been institutionalized.
Our External Evaluators, Alice Hogan and Laura Kramer, who previously served as NSF ADVANCE Program Directors, reviewed the progress of the ISU ADVANCE Program and made recommendations in their summative report in March 2012 (Year 6) (see Appendix 5). During this visit they met either together or individually with ~90 ISU faculty, administration, and professional staff. The External Evaluators were impressed with the use of existing and new career flexibility policies, including extensions of the probationary period (or "stopping the tenure clock"), part-time appointments for tenured and tenure eligible faculty, and modified duties and they underscored the importance of such policies for effective recruiting and retention. They noted, however, that career flexibility policies had been unevenly embraced by department chairs and that it will be essential to analyze usage of these policies to evaluate their effectiveness. With respect to job searches, interviews confirmed that administrative leaders believe that the search tools developed by ISU ADVANCE have improved the search process, but they also acknowledged that innovations in the recruitment process were short-circuited by the serious economic conditions that arose by the third year of the project. With respect to implementation of new top-down policies, the External Evaluators found encouraging evidence that central policies and accountability can work well, as evidenced by the university-wide third year reviews recently mandated by the Office of the Provost. Chairs were noted to have expressed interest in peer learning opportunities that facilitated exchange of information about effective practices. Equity Advisors (EA) were deemed to be central to transformation efforts and this feature of the ADVANCE project was widely viewed as a success. Mentoring improvements were noted, but there was also a recommendation to expand mentoring to create more formal mentoring of Full Professors and to develop more opportunities for senior women to explore leadership opportunities. The external mentoring for women of color was noted as potentially valuable, but as yet not formally assessed with respect to its effectiveness. The CT process, while aptly described as resource intensive was also praised for improving departmental climate, and providing an unprecedented opportunity for faculty to reflect on department dynamics, goals, and challenges. The External Evaluators emphasized that the question of how to continue CT deserves high-level consideration. With respect to issues of institutionalization of ADVANCE, External Evaluators emphasized that sufficient human resources would be needed to train the trainers, meet the demand for ADVANCE-related resources, and maintain and update the resources (including the website). At the time that their report was written, the External Evaluators had concerns regarding the lack of clarity about the future organizational home for the ongoing activities that have been important to ADVANCE’s success. As we summarize these findings, some of these issues are being resolved, at least for the short term, but many more are still being dealt with. As transitions occur in university leadership at all levels, it will become increasingly important to have such people and infrastructure in place to preserve the institutional memory and continue the positive trajectory of accomplishments that have been made via ISU ADVANCE.

The primary components of ISU ADVANCE that are being institutionalized are those that ISU administrators and stakeholders have identified as key areas of strength. The office of the Senior Vice President and Provost is providing leadership to institutionalize these key areas of strength into Iowa State’s policies, practices and structures now that NSF funding has ended. The areas being institutionalized include:

- Appointment of an ADVANCE Fellow, based in the Provost’s office, to provide leadership and coordination of ADVANCE activities. This appointment, initially for two years, assures that the voice of ADVANCE will be heard in central administration.
- Leadership of Equity Advisors all Colleges, including those not previously engaged in the ADVANCE Program. By the end of 2012-13 Equity Advisors will be appointed in all
eight colleges at Iowa State. The Faculty Fellow will work with the Equity Advisors to continue progress in the colleges.

- Implementation of a modified version of the departmental Collaborative Transformation (CT) Project, including practical applications of CT findings.
- Partnership with ISU Institutional Research for continuation of data gathering and analysis.
- Professional development for department chairs, search committees and faculty that includes information on unintended bias, faculty flexibility and diversifying the faculty
- Consistent messages about tenure from tenured colleagues.

Successes realized by the ISU ADVANCE Program are being adopted by new programs at Iowa State that are sponsored by NSF, including the SP@ISU Program (Strengthening the Professorate at ISU, funded by a 5-year I3 award) and the FLARE Institute (which focuses on the Broader Impacts of the newly funded Iowa EPSCoR award). SP@ISU has incorporated Equity Advisors into their plan to communicate Broader Impacts goals into discussions with the all the colleges at ISU. In support of the SP@ISU program, the Deans of five colleges pledged to appoint Equity Advisors for five years (three years beyond the end of ADVANCE funding). The Equity Advisors work on behalf of both ADVANCE goals and SP@ISU goals. As the FLARE program develops, best practices and lessons learned from the ISU ADVANCE Program will be shared with EPSCoR partner institutions, including the University of Iowa and the University of Northern Iowa. Thus, the impact of NSF’s investment in ISU ADVANCE will extend beyond Iowa State.

Conclusions

ISU ADVANCE has indeed made quantifiable changes to the ISU community over the past six years. The number and percentage of women Full Professors increased campus-wide and this increase is especially striking in STEM focal departments compared to STEM non-focal departments. The number of women in STEM who are in leadership positions has changed substantially from the time that we started our work. In STEM departments, the frequency of women chairs is proportional to their representation as Full Professors at the institution. The Collaborative Transformation project, which was implemented in nine focal departments, has been successful in fostering communication and collegiality among the faculty in the participating departments. Campus leaders and department chairs have recognized the value of the project and its approach and have urged administrators to expand the program to additional departments, even beyond the STEM disciplines. Assistant professors stated that they are receiving more consistent messages regarding the promotion and tenure process. The ADVANCE Scholar Program, which fostered mentoring and collaborative relationships between ISU STEM women faculty of color and Eminent Scholars in their fields, met with great success. The majority of the individuals who participated advanced in rank during the time of our grant, and several received prestigious awards. The COACHE data document that ISU is on a pathway to make raising children and the tenure-track more compatible. These are all indicators of success.

We still have work to do. Our External Evaluators noted that career flexibility policies had been unevenly embraced by department chairs. It will be essential to continue to analyze usage of these policies to evaluate their effectiveness. ISU still has not approved the Faculty Modified Duties Assignment (FMDA) for the arrival of children. Formalizing such policies and practices can only help in promoting transparency around these issues in the future. We also have work to do in recruitment and retention of under-represented minorities. The number of underrepresented minority STEM women has changed little and remains low. Iowa has always
been a challenging place to recruit underrepresented minorities. We have made some headway, but we still can work on making our working environments welcoming for a broader diversity of racial and ethnic groups. Finally, now that we have dealt with some of these issues relative to faculty members, it is also important to evaluate how such issues play out in the Professional and Scientific staff and graduate student arenas. Many of the same issues apply.

As we move forward beyond the NSF funding we have institutionalized some important components of the ADVANCE Program. The college-level Equity Advisors are now well established and recognized figures in the ISU leadership. Our new ADVANCE Fellow, who previously served as an ADVANCE Professor, is now in place for the next two years and one of the mandates of her position is to work on institutionalizing a smaller scale version of Collaborative Transformation in association with departmental reviews. We have institutionalized data collection on departmental demographics which will allow ISU’s Institutional Research Office track changes into the future. The resources (e.g., Recruitment CD, Readers Theatre productions) that we have developed will continue to be made available via the ADVANCE Fellow. We have archived our documents and data. We are still in the process of determining what role the Faculty Fellow and Provost's office will play in future dissemination and storage of data. A large proportion of the participants in our ADVANCE team are still involved in leadership at ISU, via SP@ISU, as Equity Advisors, Faculty Fellow, and as departmental chairs. We have post-grant continuity in the form of Equity Advisors in some of the colleges, which will aid in the transition. The intensive activities that occurred during the course of the grant will simply have to be scaled down. Our biggest loss will be the loss of institutional memory and support for the program as the members of the co-PI team transition away from the ADVANCE leadership. However, the ADVANCE Fellow will take over some of these duties. It will be essential to continue providing training to the ISU community as turnover occurs in leadership positions at all levels of the institution. In working with the college deans and the ISU Provost’s office, we have put in place a structure that should preserve the most critical components of ISU ADVANCE.

**Broader Impacts of the ISU ADVANCE Program**

The overarching goal of the NSF ADVANCE Program, which seeks to broaden participation of women and underrepresented minorities in STEM disciplines, is one of the Broader Impacts that the NSF seeks to achieve. In a way, then, the entire ISU ADVANCE Program fulfills the Broader Impacts criterion of NSF awards. In addition to this broad fulfillment of Broader Impacts, we can point to several specific aspects of our program that also have resulted in Broader Impacts of our work.

- **Broadening Participation:** During the tenure of the ISU ADVANCE Program, the number of women in leadership, including those serving as department chairs, has increased substantially. The ADVANCE Scholar Program which fostered mentoring and collaborative relationships between ISU STEM women faculty of color and Eminent Scholars in their fields, met with great success. The majority of the individuals who participated advanced in rank during the time of our grant, and several received prestigious awards.

- **Appointment of Equity Advisors in all colleges at Iowa State:** Early in the ISU ADVANCE Program, the Equity Advisors were recognized as valuable partners by the Deans and by the university administration. Mid-way through the grant, the Equity Advisors in the original three colleges were joined by EAs from two additional colleges that included STEM departments. At the end of Year 6, the Provost’s office announced an initiative to appoint Equity Advisors in the remaining academic colleges at the University. Thus, the contributions of the Equity Advisors will extend beyond the STEM disciplines.
• Expansion of Collaborative Transformation throughout the University: Our signature program, Collaborative Transformation, which was implemented in nine focal departments, has been successful in fostering communication and collegiality among the faculty in the participating departments. Campus leaders and department chairs have recognized the value of the project and its approach and have urged administrators to expand the program to additional departments, even beyond the STEM disciplines.

• Extending the impact of NSF’s investment in ISU ADVANCE beyond Iowa State: best practices and lessons learned from the ISU ADVANCE Program will be shared with Iowa EPSCoR partner institutions, including the University of Iowa and the University of Northern Iowa. Initiatives that will be shared include Faculty Search Resources and workshops on avoiding unintentional bias.

• Disseminating ADVANCE findings to professional societies: ISU ADVANCE co-PIs, Equity Advisors, and ADVANCE Professors have presented successes of the ISU ADVANCE Program to professional societies in their scientific disciplines, including the fields of developmental biology, evolution, conservation, engineering education, institutional research, higher education, materials engineering, sociology, and philosophy.

Sources of information in this report

The material contained in the Final Report of the ISU ADVANCE Program is based on material presented in previous annual reports and in articles, book chapters, reports, and presentations prepared by the members of the ISU ADVANCE Program. A full list of those products is provided in Appendix 1 of this report.
## APPENDICES

1. **PRODUCTS, REPORTS AND PRESENTATIONS** ............................... 32
2. **PROGRAM ORGANIZATION** ....................................................... 38
3. **ADVANCE SCHOLAR REPORT 2012** ............................................. 42
4. **INDICATOR TABLES** ................................................................. 46
   - Table 1 Number and percent of women tenured and tenure track faculty by rank, department and discipline, 2011 ........................................ 47
   - Table 2 Number and percent of tenure track and non-tenure track faculty by gender, department and discipline, 2011 ......................... 49
   - Table 3 Tenure review outcomes by gender, college and discipline, 2011 .... 51
   - Table 4 Promotion review outcomes by gender and discipline: Associate to Full Professor, 2011 ......................................................... 52
   - Table 5a and 5b ........................................................................ 53
   - Table 6 Voluntary, non-retirement attrition by rank, gender & discipline, 2011 ... 54
   - Table 7 New hires by department and discipline, 2011 ....................... 55
   - Table 8 Faculty leadership positions by gender 2011 .......................... 56
5. **EXTERNAL EVALUATORS’ REPORT (MARCH 2012)** ....................... 57
6. **PARTICIPANTS** ......................................................................... 71
7. **PROJECT OUTCOMES REPORT FOR PUBLIC (AVAILABLE ON RESEARCH.GOV)** ................................. 78
APPENDIX 1: Products, Reports and Presentations of the ISU ADVANCE Program

Journal Articles:


O'Connor, Annette J., Sandra W. Gahn and Bonnie S. Bowen. 2012. Becoming a Professor: an Analysis of Gender on the Promotion of Faculty from Associate to Full Professor. International Journal of Gender, Science and Technology. 4:78

Book Chapters


Dissertations

Ramirez, Trina J. 2011. Factors that contribute to overall job satisfaction among faculty at a large public land-grant university in the Midwest. Doctoral dissertation completed at Iowa State University.

Conference Proceedings


Educational Materials: *Brochures and flyers*

All materials listed below were published by ISU ADVANCE Program, Iowa State University, Ames, IA, and are available on our website (www.advance.iastate.edu), unless noted.

2009:

2010
- ISU Equity Advisor/ADVANCE Professor Working Group and ISU ADVANCE co-PI Team. (2010) Making the most of upcoming University transitions: perspectives from the ISU ADVANCE Program. 2 pages.

2011
- O’Connor, Annette. (2011) Resources for Chairs, Deans and Mentors: Actively mentoring Associate Professors on the path to Full Professors. 2 pages.
- O’Connor, Annette. (2011) Resources for Chairs, Deans and Mentors: Providing guidance about service commitments to Associate Professors. 2 pages.
- O’Connor, Annette. (2011) Resources for Associate Professors: Scholarship on the path to Full Professor. 2 pages.

Website

www.advance.iastate.edu

CDs (The content of these CDs is also available on our website: http://www.advance.iastate.edu/resources/facultysearches.shtml)

- ISU ADVANCE Program. (2012). Resources for Faculty Searches, 2ed.

Reports from the Collaborative Transformation Project


Additional Reports Produced for Departments (not available to the public)


Conference Presentations (presenter’s name is underlined)

2007


2008


2009


2010


O’Connor, A. (2010) Transitioning from Associate to Full (Panel Discussion). Big 12 Workshop on Faculty Diversity, April 25-26, 2010, Lawrence, KS

2011

2012

Poster presentations outside ISU: (underlined name is the person present at poster session, if known)

2007:

2008:
NSF ADVANCE Annual PI meeting, Arlington, VA. May 12-13, 2008. ADVANCE personnel listed on poster: Bird, Bowen, Carlson, Constant, Debinski, Fehr, Gahn, C. Glatz, Hamrick, Janzen, Larson, Powell-Coffman, and Thompson. Title: *Iowa State University ADVANCE Program’s Collaborative Transformation: Advancing Women Faculty in STEM Fields*

47th Annual Midwest Developmental Biology Meeting, Iowa City, IA. June 6-8, 2008. ADVANCE personnel at meeting: Powell-Coffman. Title: *Iowa State University ADVANCE Program’s Collaborative Transformation: Advancing Women Faculty in STEM Fields*

Evolution 2008 (Meeting of the Society for the Study of Evolution), Minneapolis, MN. June 20-24, 2008. ADVANCE personnel listed on poster: Bowen, Janzen, and Debinski. Title: *Iowa State ADVANCE Program: Multiple Approaches to Recruit and Retain a Diverse Faculty*

C. elegans Stress, Aging and Pathogenesis and Heterochrony Topic Meeting #4, Madison, WI. August 3-6, 2008. ADVANCE personnel: Powell-Coffman. Iowa State University ADVANCE Program's Collaborative Transformation: Advancing Women Faculty in STEM Fields

2009:

NSF Joint Annual Meeting, Washington, DC. June 8-11, 2009. ADVANCE personnel listed on poster: Carlson, Bird, Bowen, Debinski, Fehr, Gahn, Hamrick. Title: Iowa State University ADVANCE Program: An Innovative Approach to Advancing Women in Faculty in STEM Fields


NSF ADVANCE Annual PI meeting. Alexandria, VA. October 29-30, 2009. ADVANCE personnel listed on poster: Carlson, Bird, Bowen, Debinski, Fehr, Gahn, Hamrick, Constant. Title: Iowa State University ADVANCE Program: An Innovative Approach to Advancing Women in Faculty in STEM Fields

2010:


Ecological Society of America Annual Conference. August 1-6, 2010, Pittsburgh, PA. ADVANCE personnel listed on poster: Bowen, Debinski, and Janzen. Title: Evolution of Institutional Culture to Diversify the Professoriate. In Poster session organized by Debinski and Bowen: Improving Recruitment and Retention of Women Faculty in Ecology: A Focus on NSF-Funded ADVANCE Programs. Other ADVANCE Programs participating were from University of Michigan and Rice University. Date, City/State:

2012:

Society for Conservation Biology, 15-18 July 2012, Oakland, CA. ADVANCE personnel listed on poster: Debinski and Bowen. Poster title: NSF ADVANCE Institutional Transformation Programs to Diversify the Professoriate: Examples from Iowa State University
APPENDIX 2

PROGRAM ORGANIZATION

The ISU ADVANCE Program drew strength from a multi-level approach to achieving change through our Comprehensive Institutional Intervention approach. During the course of the award, we included partners from the STEM colleges and three focal departments to the ADVANCE management group.

The original proposal to NSF specified a management plan that included:

- **ADVANCE Team** of PI, co-PIs, Senior Personnel, graduate students and program assistant
- Activities at three levels of academic structure
  - Provost Office—ADVANCE Council (Associate Provost, Dean/Associate Dean from colleges, ADVANCE Program Director, Program Assistant and ADVANCE Team)
  - STEM Colleges—Equity Advisor, College Coordinating Council with Dean/Associate Dean, ADVANCE Professors, focal Department Chairs, ADVANCE Program Director
  - Focal Departments—ADVANCE team led by ADVANCE Professor, with chair, 3 additional departmental faculty and college Equity Advisor
- External Advisors
- Diversity Facilitator
- External Evaluators (evaluations were planned for years 2 and 4)

As the Program developed, the following groups were key to the success of the program.

- **ADVANCE co-PI Leadership Team**—The co-PI Leadership Team met regularly throughout the period of the ADVANCE Program to coordinate activities and make decisions. Members of the co-PI Leadership Team during the award period included: Susan Carlson (PI), Elizabeth Hoffman (PI), co-PIs Sharon Bird, Bonnie Bowen, Jill Bystydzienski, Diane Debinski, Carla Fehr, Sandra Gahn, Florence Hamrick, Carolyn Heising, Frankie Laanan, and Judy Vance. See the chart below for years of service.
- **Steering Committee** — Added in Year 2 and continuing in Years 3 and 4, this committee was composed of the PI, Executive Director, Research Director, and one representative from the group of Equity Advisors and ADVANCE Professors. The Steering Committee provided oversight to the program, approved requests for budgetary allocations, and met twice a month throughout the academic year. In Year 5 the Steering Committee was less active, and more decisions were made by the co-PI Leadership team.
- **Transition Team** — In the late spring of Year 5, a Transition Team was formed to make plans and decisions in preparation for the no-cost-extension in Year 6. Members of the Transition Team were four co-PIs (the Associate Provost for Academic Personnel and Chief Diversity Officer, the Executive Director, the Research Director, and the Associate Director of Institutional Research) and an Equity Advisor.
- **Research Director** — Based on formative evaluation during our planning retreat at the end of Year 1 and the recommendations of the External Evaluators in Year 2 (January 2008), we created the position of Research Director to recognize the leadership and commitment of the coordinator of the Research Team. Co-PI Dr. Sharon Bird was the Research Director in Years 2-6.
- **Research Team** — The Research Team was composed of the Research Director, the Associate Director of Institutional Research, and the faculty who worked with departments on the Collaborative Transformation (CT) Project. During the first round of
the CT Project, the faculty who worked on CT were Drs. Sharon Bird and Florence Hamrick. During the second and third rounds of the CT project, the faculty were Dr. Bird, Dr. Carla Fehr and Dr. Lisa Larson.

Many of the leaders of the ISU ADVANCE Program remained active in the program throughout the duration of the NSF award. This stability contributed to the accomplishments that the program achieved. Although we added some new co-PIs, the core leadership group was smaller at the end of the award than during Year 1. Co-PIs and Key Personnel of the ISU ADVANCE Program and their tenure were:

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<th>Proposal Team</th>
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<sup>a</sup> Designated a co-PI in the NSF system
<sup>b</sup> Designated a co-PI in the ISU system, but not the NSF system

The **ADVANCE Council** was composed of two groups—the co-PI Leadership Team and the Council Partners from the colleges and focal departments. In Year 1, the Council met twice a month and provided oversight for all Program activities. As a result of suggestions made by our team of External Advisors during their visit at the end of Year 1, we re-evaluated the structure of the Council to enhance the roles of the ADVANCE Professors and Equity Advisors and the inter-relationships among the components of the project. Throughout Years 2-5, the ADVANCE Council met at least 2-4 times a year to provide coordination to the program.

- **ADVANCE Council** — The ADVANCE Council was a valuable group for communicating about activities for those involved in the various aspects of the program, planning and brainstorming, and for communicating with the offices of the Deans of our five STEM colleges.
  - Members of the Council included the co-PI Team, Equity Advisors, ADVANCE Professors, Associate Deans from the five STEM colleges, Faculty Fellows, graduate students and post-docs, program assistant, and partners in various programs on campus that have missions similar to ISU ADVANCE.
  - Throughout the course of the program the Council was expanded to include new voices. In Year 3 we added Associate Deans from the Colleges of Human Sciences and Veterinary Medicine, which have STEM faculty who benefit from the campus-wide programs we offer.
  - In Year 4, we invited representatives Non-focal college and other ISU partners, including the Program for Women in Science and Engineering, the Graduate College, Science Bound, and the Center for American Intercultural Studies. In
Year 5 the Council played an important role in planning for institutionalization of some components of the ISU ADVANCE Program.

- **Equity Advisors** – The Equity Advisors played a central role in implementing the goals of the ISU ADVANCE Program and were the primary leader of efforts at the college level to transform STEM fields for women faculty and faculty of color. The Equity Advisors worked with ADVANCE Professors and the Coordinator of the Equity Advisors/ADVANCE Professors working group (EA/AP Coordinator) to ensure consistency in the implementation of the Collaborative Transformation project in the ADVANCE departments. The Equity Advisors coordinated ADVANCE efforts with other equity efforts in the college (including the College Diversity Committee) and were available for consultation on issues including hiring, mentoring, professional development, and climate. The Equity Advisors met with the Dean and Associate Deans as requested to help them assess the needs of the college. The Equity Advisors provided leadership in the development and implementation of ADVANCE workshops and networking events for the college and campus-wide.

  - As the ADVANCE Program began to plan for sustainability of the Program, the Equity Advisors were identified as one of the key components of the Program that would continue after NSF funding expired. In Year 5, they continued to meet with the ADVANCE Professors once a month, as described below, and they also began meeting with the co-PI team (once a month) and as a group of their own (once a month). Because the EAs will continue their work in future years, we felt it was important for them to devote time to discussing issues that will be continued in the future. When the EAs met on their own, the Executive Director frequently joined them to serve as a liaison to other ADVANCE activities.

    - Years 1 and 2: Lisa Larson, Charles Glatz [through December 2008], Kristen Constant (replacing Dr. Glatz April 1, 2009), and Janette Thompson

    - Years 3 and 4: Lisa Larson, Kristen Constant, and Janette Thompson

    - Years 5 and 6: Lisa Larson, Kristen Constant and Susan Lamont (replaced Janette Thompson at beginning of Year 5).

- **ADVANCE Professors** – The ADVANCE Professor played a central role in implementing the goals of the ISU ADVANCE Program and were the primary leaders of department-level transformation activities for STEM women faculty and faculty of color. The ADVANCE Professor worked with the department chair and department faculty, leading efforts to identify and sustain needed changes in practices, structures, and policies. ADVANCE Professors served as a resource for the department, and facilitated communication among the PI, the ADVANCE Executive Director, the college Equity Advisor, the ADVANCE Research Director, the EA/AP Coordinator, the focus group facilitator, and key departmental and college administrators. ADVANCE professors work closely with these groups to ensure proper implementation of the ADVANCE initiative and to provide benchmark and progress data.

  - Years 1 and 2, Round 1 CT departments: Kristen Constant, Materials Science and Engineering, Ralph Napolitano, MSE (replaced Dr. Constant May 1, 2009), Fred Janzen, Ecology, Evolution & Organismal Biology (through Dec 2008), James Raich, EEOB (began January 2009) and Jo Anne Powell-Coffman, Genetics, Development and Cell Biology.

  - Year 3: Round 1 CT departments: Napolitano (MSE), Raich (EEOB), Steve Rodermel, GDCB (replaced Powell-Coffman September 2009, beginning of Year 3)
- Year 3: Round 2 CT departments added: Mark Gordon (Chemistry), Shauna Hallmark (Civil, Construction and Environmental Engineering), and Elisabeth Lonergan (Animal Science).
- Year 4: Round 3 CT departments added: Alan Goldman (Physics and Astronomy), Adam Bogdanove (Plant Pathology), and Charles Glatz (Chemical and Biological Engineering).

- **Equity Advisor/ADVANCE Professor Working Group** — The Equity Advisor/Advance Professor (EA/AP) Working Group was formed in Year 2 and was very active in Years 3-5. The goal of this group is to promote synergistic efforts among departments, colleges, and the university community at large. This working group was very productive and very successful in providing communication with the Program and throughout the campus. Coordinated by co-PI Dr. Diane Debinski, it was composed of college Equity Advisors ADVANCE Professors, Dr. Debinski, who represents the ADVANCE co-PI team, and Dr. Bonnie Bowen, who represents the Steering Committee. Other ADVANCE team leaders attend as necessary, depending upon current activities. The Equity Advisors and ADVANCE Professors met as a group every two weeks, and communicated the notes from their meeting to the ADVANCE Co-PI Leadership team.

- **Internal Advisory Board** — This group, composed of the Executive Vice President and Provost and the Deans of the five colleges with STEM departments, met with the members of the Steering Committee once in Year 2 and twice in Years 3, 4 and 5. The Board provided feedback on ADVANCE activities, including research, programming, data collection and dissemination, training, communications and networking. This group of high level administrators helped us adjust our resources and prepare to sustain elements of the ADVANCE program when NSF funding ends. Engagement of the Deans and Provost was especially important during times of economic challenge at the university.

- **Staff** — The ADVANCE Program Assistants provided valuable support throughout the award period. Three talented individuals served in this role: Susan Masters worked in Years 1 and 2 to help establish our procedures and get the program off the ground. Early in Year 2, Nicol Jones brought her expertise in communication to the program and she has made important contributions to Web site development, organizing the conference in Year 3, and supporting the ADVANCE Scholar program. Following Nicol’s resignation in Year 5, Diane Smith brought many years of experience at ISU to the program for the final months of the official grant period. During Year 6 (no cost extension), we had no Program Assistant.
Six scholar pairs (ISU ADVANCE Scholars and Eminent Scholars in their disciplines or specialty areas) participated in the ISU ADVANCE Scholar Program during 2010-11 and 2011-12, the fifth and sixth years of the ADVANCE Program. Three Eminent Scholars visited Iowa State University and all six ISU ADVANCE Scholars visited their Eminent Scholars’ institutions or met with them at a professional conference. One pair will co-chair an international conference in 2013, two others will continue to collaborate on manuscripts and research projects, and one ADVANCE scholar is applying for a faculty developmental leave to study directly with her eminent scholar.

Topics, Activities, and Tasks:

All ISU ADVANCE Scholars completed report forms (questionnaires) covering their experiences with the program for both 2010-11 and 2011-12. The specific tasks and activities undertaken by the Scholar pairs during their reciprocal visits and via e-mail or phone are summarized below. All names and references to specific disciplinary areas have been removed for this aggregated report. ISU ADVANCE Scholars also provided open-ended feedback, which is summarized at the end. Eminent Scholars were not asked to complete annual reports.

The following occurred during the ISU ADVANCE Scholars’ visits to their Eminent Scholars’ institutions or during their interaction at professional conferences:

4. Gave a seminar or talk at the department or program level
1. Gave a seminar or talk at the college or school level
5. Met with Eminent Scholar’s colleagues
5. Met with Eminent Scholar’s students and/or lab personnel
5. Discussed grant-writing strategies
4. Discussed and received feedback on draft journal manuscript(s) or abstracts
4. Discussed and received feedback on draft funding proposals
6. Discussed external funding sources relevant to your work
5. Discussed opportunities for networking with other prominent scholars
4. Discussed research techniques, fieldwork approaches, and/or data analyses
1. Discussed Collaborative research projects in various stages of progress
5. Discussed future collaboration(s)
4. Discussed strategies related to promotion and tenure success
4. Discussed scholarly or professional leadership opportunities
3. Discussed strategies related to managing research labs and/or personnel
5. Shared meal(s) and/or informal time with Eminent Scholar
4. Shared meal(s) and/or informal time with Eminent Scholar’s colleagues
4. Shared meal(s) and/or informal time with Eminent Scholar’s students / lab personnel
5. Discussed ADVANCE program (i.e., ISU or national-NSF)
4. Discussed issues related to career advancement for women faculty of color
5. Met at a national or international meeting or conference

The following occurred during the Eminent Scholars’ visits to Iowa State University:

1. Gave seminar or talk at the department or program level.
1. Gave seminar or talk at the college or school level.
2. Spoke to an institution-wide audience (e.g., open invitation campus-wide)
3 Met with ISU ADVANCE Scholar’s colleagues
3 Met with ISU ADVANCE Scholar’s students and/or lab personnel
3 Discussed grant-writing strategies
3 Discussed and received feedback on draft journal manuscript(s) or abstracts
3 Discussed and received feedback on draft funding proposals
3 Discussed external funding sources relevant to your work
3 Discussed opportunities for networking with other prominent scholars
3 Discussed future collaborations
2 Discussed strategies related to promotion and tenure success
2 Discussed scholarly or professional leadership opportunities
1 Discussed strategies related to managing research labs and/or personnel
3 Shared meal(s) and/or informal time with ISU ADVANCE Scholar
3 Shared meal(s) and/or informal time with ISU ADVANCE Scholar’s colleagues
2 Shared meal(s) / informal time with ISU ADVANCE Scholar’s students / lab personnel
3 Discussed ADVANCE program (i.e., ISU or national-NSF)
2 Discussed issues related to career advancement for women faculty of color
3 No visit by the Eminent Scholar during this award period
3 Other (please explain):
   • Met with Eminent Scholar at a conference rather than at home institution
   • Eminent Scholar participated as an external member of 2 ISU POS committees
   • Eminent Scholar attended a final oral exam
   • Met at several additional research meetings related to field of study

Related Documentation:

Photographs (where available), links to documents, and web site links have been posted on the ISU Scholar Program web site to illustrate the Scholar Pairs’ visits and research presentations. ISU departmental web sites also listed and publicized the visiting Eminent Scholars’ talks and related events, with appropriate credit to the ISU ADVANCE Program.

Email or Phone Contacts:

Of the six scholar pairs, five reported phone or email contact during the 2010-2012 timeframe. ISU ADVANCE Scholars reported engaging in between two and twenty phone conversations with their Eminent Scholars; three of these ADVANCE Scholars reported self-initiation of most phone calls to Eminent Scholars. Two ADVANCE Scholars reported phone calls initiated equally by her and her Eminent Scholar.

All Scholar pairs exchanged e-mails during the award period. The ADVANCE Scholars estimated between 20 and 50 e-mail exchanges with their Eminent Scholars. The e-mails were initiated primarily by the ADVANCE scholars, although in some cases both the ISU scholar and her Eminent Scholar initiated the exchanges.

During these phone calls and e-mail exchanges, the following topics were discussed:

4 Feedback on draft journal manuscript(s) or abstracts
4 Feedback on draft funding proposals
4 External funding sources relevant to your work
5 Opportunities for networking with other prominent scholars
5 Research techniques, fieldwork approaches, and/or data analyses
4 Current or future collaboration(s)
3 Strategies related to promotion and tenure success
2 Scholarly or professional leadership opportunities
2 Strategies related to managing research labs and/or personnel
4 Plans for future visits or meetings
4 ADVANCE program (i.e., ISU or national-NSF)
2 Issues related to career advancement of women faculty of color
Open-ended Items:

**Future Plans:** Please describe plans for future interactions with the Eminent Scholar (e.g., collaborations, visits, contacts):

- Continue work on several collaborative research projects
- Continue work on co-chairing an international conference
- Start work on joint grant proposals
- Eminent scholar participation in POS committee update
- Collaboration in several manuscripts
- Meeting for coffee at conferences
- Faculty development leave to study with Eminent Scholar
- Continue work on manuscript in draft
- Collaborative multi-institutional research proposal revision
- Consideration of bringing in foreign graduate student for work on collaborative project

All Scholar pairs plan to keep in touch and continue collaboration and visits.

**Benefits:** Please describe benefits associated with your participation in the ISU ADVANCE Scholar Program:

"It was great to have someone knowledgeable to bounce questions and concerns with"

"It has allowed me to collaborate with faculty inside ISU and at other US and international institutions working on similar areas of research"

"1. Having a great mentor to discuss career and life and to share personal achievements/happiness as well as difficulties
2. Collaborating with the eminent scholar in research, which often lead to a high percentage of success.
3. Having critical advice on the promotional process"

" Networking, communication with top mathematicians
   Expanding my research horizons
   Gaining knowledge on many issues, including graduate student and post-docs
   Mentoring"

"The… program allowed me to strengthen my connection to (a research lab)… By being able to visit the laboratory and meet with him at conferences, we have developed connections with the group at (the research lab) not just for me but also for students and post-docs."

**Specific benefits: Promotions and Awards:**

Four of the six ADVANCE scholars reported receiving a promotion during their participation in the program. Three were promoted to associate professor with tenure; one was promoted to full professor. One did not specify the type of promotion. Four stated their participation in the Scholar Program was beneficial to their promotion or professional awards. One was uncertain about the impact of the program on her promotion. One did not receive awards or promotion during the examined time frame but still believed the program was beneficial to her career development.

Four respondents received college, university, or external awards during the course of their participation in the ADVANCE program. One ADVANCE scholar received her departmental Research and Teaching Excellence Award. One received the Rising Star award by her national society, as well as the diversity award in her college. One received a prestigious prize from her national society; her Eminent Scholar was one of the letter writers for the award. One received the National Science Foundation Early Career Award as well as the ISU Early Achievement in
Research Award. Two ADVANCE Scholars reported that their Eminent Scholars served as a recommender or helped edit drafts for the award.

**Recommendation:** Would you recommend participation in this program to colleagues? Why or why not?

“Yes, I would recommend it. ADVANCE has allowed me to forge a network of women at ISU and at other institutions having similar career experiences, regardless of their field of study.”

“Yes, it has been very helpful [to establish myself] in (my professional) society”

“Yes, I will share my great experience with them”

“Yes, and everyone should get a mentor”

“YES”

“Yes, I think having to choose a mentor in the field is very important. Just having the conversation with that person makes them more aware that their advice is valuable. The opportunities that [arise] are quite unique and cannot be predicted but certainly are very positive.”

**Suggestions:** Please provide suggestions for improving the ISU ADVANCE Scholar Program (in terms of your experiences, and in terms of the Program as a whole):

“Finding good mentors will be very crucial. Providing some suggestions on topics to be discussed with mentors will be helpful as well. Sharing among ISU ADVANCE scholars is also an excellent idea”

“I would organize ADVANCE women’s luncheons at least twice a year to allow the opportunity for networking in a relaxed setting”

“The roles and accomplishments of the equity advisors was not obvious in my department”

“My experience was very positive and I hope more people/faculty will get involved in the program”

“If anything, I was a bit surprised that this was target to just women of color. In (my department) it could easily benefit any woman in the field. The numbers are that low.”

*One participant did not respond to this question.*
APPENDIX 4

REPORT OF KEY INDICATORS

During Year 6 we continued to monitor the key indicators and added to the tables that were created in previous years. ISU Co-PI Team member, Dr. Sandra Gahn led the effort to compile the data from 2001-2011. Dr. Gahn is Associate Director of Institutional Research and most of the data were available through the Institutional Research database. The tables that follow provide an extension of the data presented in the previous Annual Reports. These key indicators continue to provide valuable data for the assessment of the impact of the institutional transformation being undertaken by the ADVANCE Program.

Charts and figures based on some of these tables appear in narrative of our Outcomes, Measures of Success, and Future Objectives. We continue to divide the ISU departments into three disciplines, STEM (science, technology, engineering and mathematics), SBS (social and behavioral sciences) and HBD (humanities, business, and design). Most tables are aggregated by discipline. We have aggregated data by department, where appropriate. For Tables 3 and 4, dealing with tenure and promotion review, we have aggregated data by colleges and by discipline. Tables that are aggregated by department are not aggregated by college, because of the complexity of departments that are administered jointly by two colleges.
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<th>Assoc</th>
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<th>Assoc</th>
<th>Asst</th>
<th>Total</th>
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<td>8</td>
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<td>8%</td>
<td>21%</td>
<td>58%</td>
<td>72%</td>
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<td>16%</td>
<td>12%</td>
<td>52%</td>
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<td>2%</td>
<td>8%</td>
<td>15%</td>
<td>32%</td>
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<td>3</td>
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<td>64%</td>
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<td>0</td>
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<td>2%</td>
<td>11%</td>
<td>20%</td>
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<td>4</td>
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<td>2</td>
<td>2</td>
<td>5</td>
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<td>4%</td>
<td>11%</td>
<td>20%</td>
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<td>5%</td>
<td>4%</td>
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<td>4</td>
<td>12%</td>
<td>7%</td>
<td>7%</td>
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</tr>
<tr>
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<td>1</td>
<td>2</td>
<td>5</td>
<td>8%</td>
<td>3%</td>
<td>12%</td>
<td>25%</td>
<td>66%</td>
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<td>4%</td>
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<table>
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<th>Women</th>
<th>Men</th>
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</tr>
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<tr>
<td>STEM</td>
<td>14.9%</td>
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### Table 1. Number and Percent of Women Tenured and Tenure Track Faculty by Rank, Department, and Discipline 2011-continued

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<td></td>
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<td>Assoc</td>
<td>Asst</td>
</tr>
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<td><strong>Social &amp; Behavioral Sciences (SBS)</strong></td>
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<td></td>
<td></td>
</tr>
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<td>Agricultural Education &amp; Studies</td>
<td>SBS</td>
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<td>SBS</td>
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<td>1</td>
</tr>
<tr>
<td>Apparel, Educational Studies &amp; Hospitality Management</td>
<td>SBS</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Curriculum &amp; Instruction</td>
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<td>8</td>
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<td>Economics</td>
<td>SBS</td>
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</tr>
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<td>Educational Leadership &amp; Policy Studies</td>
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STEM = Science, Technology, Engineering, Mathematics  
SBS = Social & Behavioral Sciences  
Humanities, Business, & Design
<table>
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<th>Department</th>
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<td>Total Women</td>
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<tr>
<td>Biochemistry, Biophysics, &amp; Molecular Biology</td>
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<td>7</td>
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<tr>
<td>Chemical &amp; Biological Engineering</td>
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<td>27.8%</td>
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Table 2. Number and Percent of tenure track and non-tenure-eligible faculty by gender, department, and discipline for 2011—continued

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<tr>
<th>Department</th>
<th>Tenured &amp; Tenure-Track</th>
<th>Non-tenure-eligible</th>
<th>Non-tenure-eligible Women as % All Women</th>
<th>Non-tenure-eligible Men as % All Men</th>
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<td>%Women</td>
<td>Total</td>
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<tr>
<td>Social &amp; Behavioral Sciences (SBS)</td>
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<td></td>
<td></td>
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<td>25.0%</td>
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</tr>
<tr>
<td>Music &amp; Theater</td>
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<td>21.1%</td>
<td>17</td>
</tr>
<tr>
<td>Philosophy &amp; Religious Studies</td>
<td>19</td>
<td>7</td>
<td>36.8%</td>
<td>8</td>
</tr>
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<td>Supply Chn/Info (formerly Logistics, Operations, &amp; Management Information Systems)</td>
<td>21</td>
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<td>World Languages &amp; Cultures</td>
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Table 3. Tenure Review Outcomes 2011

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<th>STEM Disciplines</th>
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<th># Reviews</th>
<th></th>
<th># Approvals</th>
<th></th>
<th># Denials</th>
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<td>Female</td>
<td>Male</td>
<td>Total</td>
<td>Female</td>
<td>Male</td>
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<tr>
<td>Agriculture &amp; Life Sciences</td>
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<td>6</td>
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<td>2</td>
<td>4</td>
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<tr>
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<table>
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<th>College</th>
<th># Reviews</th>
<th></th>
<th># Approvals</th>
<th></th>
<th># Denials</th>
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<td>Total</td>
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<td>Male</td>
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<td>2</td>
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<table>
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<th>HBD Disciplines</th>
<th>College</th>
<th># Reviews</th>
<th></th>
<th># Approvals</th>
<th></th>
<th># Denials</th>
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<tbody>
<tr>
<td></td>
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<td>Total</td>
<td>Female</td>
<td>Male</td>
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<td>3</td>
<td>5</td>
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<td>3</td>
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<td>5</td>
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<td>12</td>
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</tbody>
</table>

Note: STEM refers to Science Technology, Engineering & Math; SBS refers to Social & Behavioral Sciences; HBD refers to Humanities, Business & Design

Faculty members (one in STEM, one in SBS and two in HBD) resigned their positions in lieu of mandatory review.

These numbers reflect tenure review outcomes that were submitted to the Executive Vice President & Provost Office.

Source: Office of Institutional Research
### Table 4. Promotion Review Outcomes 2011

| STEM Disciplines | College | # Reviews | | # Approvals | | # Denials |
|------------------|---------|-----------|-------------------------------------------------|---------------------------------|-----------------|
|                  | Female  | Male      | Total   | Female  | Male      | Total   | Female  | Male      | Total   |
| Agriculture & Life Sciences | 3       | 4         | 7       | 3       | 4         | 7       | 0       | 0         | 0       |
| Engineering      | 2       | 5         | 7       | 2       | 5         | 7       | 0       | 0         | 0       |
| Human Sciences   | 1       | 1         | 2       | 1       | 1         | 2       | 0       | 0         | 0       |
| Liberal Arts and Sciences | 0       | 5         | 5       | 0       | 5         | 5       | 0       | 0         | 0       |
| Veterinary Medicine | 1       | 0         | 1       | 1       | 0         | 1       | 0       | 0         | 0       |
| **TOTAL**        | 7       | 15        | 22      | 7       | 15        | 22      | 0       | 0         | 0       |

| SBS Disciplines | College | # Reviews | | # Approvals | | # Denials |
|------------------|---------|-----------|-------------------------------------------------|---------------------------------|-----------------|
|                  | Female  | Male      | Total   | Female  | Male      | Total   | Female  | Male      | Total   |
| Agriculture & Life Sciences | 0       | 0         | 0       | 0       | 0         | 0       | 0       | 0         | 0       |
| Human Sciences   | 0       | 0         | 0       | 0       | 0         | 0       | 0       | 0         | 0       |
| Liberal Arts and Sciences | 2       | 3         | 5       | 2       | 3         | 5       | 0       | 0         | 0       |
| **TOTAL**        | 2       | 3         | 5       | 2       | 3         | 5       | 0       | 0         | 0       |

| HBD Disciplines | College | # Reviews | | # Approvals | | # Denials |
|------------------|---------|-----------|-------------------------------------------------|---------------------------------|-----------------|
|                  | Female  | Male      | Total   | Female  | Male      | Total   | Female  | Male      | Total   |
| Business         | 0       | 0         | 0       | 0       | 0         | 0       | 0       | 0         | 0       |
| Design           | 1       | 1         | 2       | 1       | 1         | 2       | 0       | 0         | 0       |
| Liberal Arts and Sciences | 0       | 0         | 0       | 0       | 0         | 0       | 0       | 0         | 0       |
| Library Services | 0       | 0         | 0       | 0       | 0         | 0       | 0       | 0         | 0       |
| **TOTAL**        | 1       | 1         | 2       | 1       | 1         | 2       | 0       | 0         | 0       |

Note: STEM refers to Science Technology, Engineering & Math; SBS refers to Social & Behavioral Sciences; HBD refers to Humanities, Business and Design

These numbers reflect promotion review outcomes that were submitted to the Executive Vice President & Provost Office.

Source: Office of Institutional Research
The following Tables were not prepared for 2011, Year 6, because they required an exceptionally large investment in time to prepare them and we found that they did not provide metrics useful for measuring the success of our faculty.

Table 5a. Years in Rank at the Associate Professor Level for Faculty Hired as Assistant Professors

Table 5b. Years in Rank at the Associate Professor Level for Faculty Hired as Associate Professors
Table 6. Voluntary, Non-Retirement Attrition, by Rank and Gender Fiscal Year 2011

<table>
<thead>
<tr>
<th>Category</th>
<th>DEPARTMENT</th>
<th>ASST PROF</th>
<th></th>
<th>ASSOC PROF</th>
<th></th>
<th>PROF</th>
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<td>Male</td>
<td>Total</td>
<td>Female</td>
<td>Male</td>
<td>Total</td>
<td>Female</td>
</tr>
<tr>
<td>STEM</td>
<td>Agricultural &amp; Biosystems Engr</td>
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<td>0</td>
</tr>
<tr>
<td>STEM</td>
<td>Civil, Construction &amp; Environmental Engr</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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STEM = Science, Technology, Engineering, & Mathematics
SBS = Social & Behavioral Sciences
HBD = Humanities, Business, & Design
Table 7. New Hires by Category 2006-07 to 2011-12

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Grand Total: 120                  180                  40.0%                  300                  9                  38                  19.1%                  47                  13                  40                  24.5%                  53                  400

*Note: HBD stands for Humanities, Business & Design; SBS stands for Social & Behavior Sciences; STEM stands for Science, Technology, Engineering & Math

STEM = Science, Technology, Engineering, and Mathematics
SBS = Social and Behavioral Sciences
HBD = Humanities, Business, and Design
Table 8. 2011-2012 Faculty Leadership Positions

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<th>% Women</th>
<th>Total</th>
<th>Women</th>
<th>% Women</th>
<th>Total</th>
<th>Women</th>
<th>% Women</th>
<th>Total</th>
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<td>35.8%</td>
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<td>14.3%</td>
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<td>12.5%</td>
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Note: IR counts are from the October 2011 payroll census file.
**Includes only those who are faculty who hold rank in an academic department

STEM = Science, Technology, Engineering, & Mathematics
SBS = Social and Behavioral Sciences
HBD = Humanities, Business, and Design
Appendix 5

ISU ADVANCE PROGRAM

EXTERNAL EVALUATORS’ SUMMATIVE REPORT

MARCH, 2012

PREPARED BY

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AND
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Introduction and context

Now in its final months of a no-cost extension, following five full years of NSF funding, the Iowa State University ADVANCE Program arranged for us to prepare our final summative external evaluation of the Program. This report integrates and updates our report of February, 2011, with our review of more recent reports and a series of telephone interviews in February and March 2012 with eighteen administrators and faculty including five deans, all ADVANCE PIs, and Equity Advisors. The February 2011 report was based on materials available as of October 2010 and our visit to campus in which we had five full days of interviews and focus groups with ADVANCE team members, organizational partners, leaders and faculty in focal departments and colleges. In total, on that visit we met (either together or individually) with almost ninety members of the ISU faculty, administration, and professional staff. Again we commend the ADVANCE Office for providing us full exposure to the ADVANCE project and its organizational context, and continuing to provide logistical support for our arrangements. We also note with appreciation the cooperation of so many people, with busy professional lives, who took the time to talk with us.

The University and transformative policies

Policy outcomes defined by the ISU ADVANCE Program focus on increasing the use of existing and new career flexibility policies, including extensions of the probationary period (or “stopping the tenure clock”), part-time appointments for tenured and tenure eligible faculty, and modified duties policy. The emphasis of policy in this context is highly pragmatic and geared to institutional goals for effective recruiting and retention (defined by ISU as a university priority). The clarity of why these policies are important is supported by the important work done to assess and compare the relative cost of retention approaches with costs of faculty replacement, and by presentations such as Administrative Fellow Dr. Mary Harris’ overview of work-life balance and the ISU resources available to support work-life flexibility in pursuit of recruiting the best faculty. With funding from a Sloan Foundation grant in 2006, Iowa State began development of a creative database and tracking system to quantify the benefits that can accrue from flexible career policies and to conduct a cost-benefit analysis of these policies. ADVANCE PI Susan Carlson led the project, which involved collaboration between the Office of the Provost and Institutional Research. The result of this project was presented by Sandra Gahn (ADVANCE co-PI and Associate Director of Institutional Research) and Carlson at the ISU conference on faculty flexibility in 2008. The resources developed during this phase of the project, including a unique focus on quantifying the benefits that may accrue from flexible career policies, are innovative and should be effective tools in recruitment and retention efforts, as they provide a very clear case in support of use of flexible career policies.

Over the course of the ADVANCE Project, comprehensive resources have been developed for chairs, deans, and faculty that detail policies and guidelines, identify where more information is available, and generally facilitate use of the hard-won set of policies supporting career flexibility. Based on our meetings in October 2010, we concluded that this impressive focus on equipping the academic leadership with tools for implementing career flexibility policies had been unevenly embraced by department chairs. It was also hard to determine the extent of commitment by the Deans to advancing the full utilization of these University policies. This is unfortunate: policy changes and usage have little impact if these academic leaders are not fully and consistently on board. Even within some Collaborative Transformation (CT) focal departments, we found practices that are inconsistent with the University’s goals for a family friendly environment. It was particularly troublesome, for example, to learn of cases where department chairs actively discouraged faculty (both male and female) from using tenure extension policies, or to learn that some women faculty...
in CT focal departments didn’t know tenure extensions were possible. Recently collected data about promotion candidates in the last academic year provide the positive news that all who had made use of the tenure clock stopping policy were successful in their tenure and promotion decisions. There are no data, however, to assess whether people are being discouraged by departmental pressures from making use of the policy, nor whether some people are choosing to leave ISU because they have been discouraged about moving to the tenure review. It is positive to find that the reviewers do not react negatively to candidates who have stopped the clock, but it will be essential to complete the data collection about usage before the success of this policy initiative can be determined. While it is clear that usage is strong, department rates of usage among eligible women and men is a critical indicator that would enable administrators to assess where there are weak links in the actual use of this policy. Similar data are needed to assess the use of modified duties arrangements, and the use of policies for part time tenure track appointments.

The proposal also included policy goals with respect to recruitment. This element centers on informing the community about existing practices and beliefs that result unintentionally in lower rates of appointments of women relative to their availability. A well regarded body of materials has been developed, including printed and electronic matter and trainings aimed at participants in searches. We understand, for example, that the CD developed by ADVANCE, together with short presentations by Equity Advisors for various groups, has substantially increased awareness of how standard approaches to recruiting may interfere with diversifying the faculty. Individuals who had attended such presentations spoke highly of them, while others had heard positive comments about them. It is clear that numerous participants in searches have been glad to become aware of better practices for successful and open searches.

However, it seems that despite discussions in which people learn how common practices for searches may limit the outcomes in terms of both excellent candidates and gender equity, and of the availability of tools for overcoming those practices, there is not a uniform approach to using these tools. The existence of models such as the flowchart developed in the College of Engineering that clarifies the steps the College expects in searches does suggest that there is greater attention to best practices for searches, with better outcomes arising from these new approaches to searches.

Our recent interviews confirm that administrative leaders believe that searches have improved and that departments use the search tools. In some cases, it appears that recruitment committees received strong feedback when their applicant pools and/or proposed short lists were inadequately diverse (relative to national pools). Although it seems there is no standardized monitoring of the practices of search committees, leaders do seem to be monitoring outcomes at different stages of the search process. Making use of promising practices is apt to become more uniformly interesting to committee members because they want to see their searches end with new appointments.

Whether administrative feedback about outcomes can be regarded as lip service or will make meaningful changes in the future can best be assessed when evidence from subsequent searches is reviewed. The recruitment emphasis of the proposal was short-circuited by the serious economic conditions that arose by the third year of the project, significantly affecting the total number of authorized positions at all levels. This makes evidence of the extent of ADVANCE-related impact with respect to recruitment outcomes difficult to assess. Even as hiring resumes at a pre-economic crisis level, recruitment is one of the indicators of transformation that can be most difficult to show significant change given the slowness with which overall faculty demographics typically change. There were reported to be more than 15 searches in both LAS and ENG in 2011-2012; these searches should have had the benefit of the lessons learned from the ADVANCE work and would be
interesting to review in that regard. We regret that we are unable to assess the impact of ADVANCE in changing the recruitment of women and people of color into STEM faculty positions because the data on the 2010-11 academic year hiring results are not available.

It is also clear that there is a wide variety of approaches to recruitment and a general ambivalence about top-down mandates. In this context, the work ADVANCE is most likely to be effective when there is a leadership decision to make effective recruitment practices more uniformly part of the institutional culture. The ISU ADVANCE team has considerable insight into practices for effective searches and Equity Advisors are able to provide help to departments that wish to improve their searches. This may help avoid the perception voiced at different times during our 2010 visit that ‘ISU won’t set rules but will quickly tell you what you did wrong’.

The resources and training events produced by ADVANCE should also be helpful as recruitment expands with a change in the funding climate and the inevitable departure of senior faculty in the coming years. With the continuation of the Equity Advisors component of ADVANCE (see the following section on focal colleges and departments) there will be ongoing trainings for the changing composition of the groups involved in recruitment activities over time.

However, it will be essential to identify an office with sufficient human resources to maintain and update the website, the resources, and to meet the demand for “training the trainers” that would be a necessary part of the expansion of the Equity Advisor model to other colleges at ISU. A visible and widely known university location, with sufficient human resources allocated to the coordination of information and resources to continue the momentum that has developed over the years of NSF funding of ADVANCE. We were struck in our 2012 interviews by the lack of clarity about the future organizational home for the ongoing activities that have been important to ADVANCE’s success (trainings, maintenance of websites, sponsoring of networking opportunities, hosting of visiting lecturers). For the next few years, the Faculty Fellow will lead the efforts of the Equity Advisors, but we are concerned about the adequacy of this arrangement, given the Fellow’s one-quarter time appointment and the failure to commit any administrative support staff to this dimension of the Fellow’s work.

Concerning the potential impact of important contributions of ADVANCE, such as developing the tools for more effective University recruiting practices, we heard many comments that suggest a widespread belief that the University culture is intolerant of required practice imposed from the top. In this view, it would simply be unacceptable for the Provost to require the adoption of a single set of practices to address an academic challenge. For example, it was predicted that there would be active resistance if attendance at search committee training (or other kinds of training) were required by the Provost’s office.

However, we found important instances of required practices successfully initiated from the upper levels of the central administration. Despite the many contextual constraints on transforming approaches to recruitment and retention, from budgetary issues to satisfaction with current practice, we found encouraging evidence that central policies and accountability can work well. This is evidenced by the university-wide third year reviews mandated by the Office of the Provost, a practice universally seen as helpful and a marked improvement over prior practice. Selective initiatives involving a mandated process are indeed possible.

3

ISU ADVANCE Program Summative Report, March 2012
Transformation through focal units and positions

ISU’s Collaborative Transformation (CT) initiative engaged nine focal departments in an interactive, highly focused process of in-depth interviews, data analyses, presentation of findings, and development of action plans. The focus on departments reflects the role departments play as key structural elements in defining and maintaining culture and practice. In offering focal departments participation in facilitated self-study and reflection, the ADVANCE Program provided a rare opportunity for professional development and growth within the departments, which led to important changes that many believe will be permanent. Among the changes most often mentioned as significant, the recognition and acceptance of the need for transparency and open communication resounded strongly. The need for transparency was seen as a cross-cutting requirement for sustained, positive change in areas as diverse as faculty searches, teaching assignments, allocation of resources, and tenure and promotion decisions.

It is clear that this process had substantial impact in focal departments. Almost uniformly, faculty agreed that the process was conducted professionally, contributed to improving departmental climate, and provided an unprecedented opportunity for reflection on department dynamics, goals, and challenges. The CT process was described as ‘civilizing’ and as having provided faculty with the language to engage in discussions of important issues related to the diversification of the faculty. In the view of participants, CT informed faculty of what was important to faculty success and enabled faculty to change the climate in their departments.

Clearly, the Collaborative Transformation process required a willingness to engage in frank discussion of the ways in which departmental business as usual had affected search outcomes, promotion and tenure outcomes, and retention. The process provided a way for people to talk about the environment in their departments more openly and honestly, and created a more common understanding of what faculty wanted in their institutional homes. For many, the process required moving out of a traditional comfort zone, particularly for senior faculty who may have had little opportunity for and no feeling of comfort in such discussions. For junior faculty, the CT process seems to have been validating, contributing to a sense that their voices and opinions were welcome in the department. Participants generally praised the process, some saying that there had been ‘immeasurable positive impact’. Absent a grant like ADVANCE, it is unlikely that these changes would have occurred.

The impact of the CT work extends beyond departments. Many of the academic administrators we talked with see the process as valuable, particularly in the highly-decentralized environment of Iowa State where individual units function with relatively high autonomy, and chairs constitute a large portion of University leadership. However, plans for the future of this process of self-study are still undefined. There have been discussions of making a process similar to the CT process a part of periodic departmental reviews, but this does not appear to be confirmed at this point. A primary concern is the cost of the intensive research and analysis work that has supported the CT process. Several documents have been developed that grapple with the issue of CT might continue, including as ‘CT light’, but it is evident that much of this potential development will be left to the next Faculty Fellow to lead.

The summary report of the CT process draws on findings that were common across all nine focal departments, and suggests ways in which departments might address concerns ranging from collegiality and the work environment to work-life balance and family friendly policies. As a synthesis report, it identifies common issues across the nine focal departments, and provides a
checklist of possible interventions. We understand that this might be seen as a way to preserve the benefits of the CT process and make a ‘light’ version available to other departments. The report is interesting and comprehensive but it is not a substitute for the self-study that really engages faculty members in thinking about their assumptions, behavior, and beliefs and how those contribute to the departmental climate. There is a process of discovery about the body of scholarship that reveals the extent of unintended bias or of implicit assumptions that is key to fundamental change in behavior. In a CT light, the introduction to this scholarly literature will be missing, although links to appropriate references will be helpful. Thus, the question of how to continue CT deserves high-level consideration. Other ADVANCE institutions have programs for department self-study; these have been identified by the ADVANCE ISU team and could provide possible alternative, lower budget approaches to consider.

Within CT departments, a faculty member was selected to be the ADVANCE Professor by the department, and led the transformation process. This included guiding the early stages of the process and being the department’s point person for leading discussions and activities related to the CT process. This function was effective in tailoring information to the specific interests of the department and in legitimizing discussion in the department of issues of diversity that might otherwise not have surfaced. It is clear that faculty believed that having someone designated in this role was helpful. The ADVANCE Professor’s commitment and understanding of the issues are important, as is respect from colleagues.

In some departments, the ADVANCE Professor has a working committee of colleagues, while in others the ADVANCE Professor works solo. Because ADVANCE Professors guide their departments’ review of issues raised in the CT process, they sometimes raise contentious issues. This can be difficult to do in a department context where colleagues may find discussions of challenging issues unpleasant, and resist discussions. Whatever shape the departmental-level change initiative may take after the end of ADVANCE funding, it will be important to continue to provide training and guidance to the leaders of any departmental-level efforts, equipping faculty in this role with knowledge and tools to effectively move forward. At Iowa State, as at other ADVANCE institutions, participation by faculty in departmentally-based change efforts has equipped many faculty members with (non-positional) leadership skills and experience that are likely to be beneficial to the institution in the long run as faculty members feel empowered to explore leadership opportunities on campus and in professional organizations.

While the CT process was effective in the early stage of opening up dialogue and identifying concerns among department members, it is not clear what its longer-term outcomes will be within the focal departments. Most respondents said that department discourse will never revert to what it was before the CT process, and a number of departments are incorporating changes in departmental practice and policy into departmental governance documents. This aspect of more open dialogue was most evident with respect to faculty expectations of how searches are conducted. To the extent that departmental search practices have changed and those changes are now codified in governance documents, the CT process has clearly laid the groundwork for substantial impact in focal departments. However, the outcomes are uneven across departments. In extreme cases, despite interest and enthusiasm among the faculty there was too little (in one case no) time allotted on departmental meeting agendas for the essential collective consideration of results and next steps. This resulted in frustration and a more aggrieved faculty. It also appears that when departments chose which of the identified issues to work on, there was a tendency to target the less threatening ones (e.g., working towards a mentoring program turned out to be a popular choice, where other, more charged issues were less apt to be chosen).
It was difficult to discern whether there were ‘top-down’ expectations of the focal departments that would ensure that all focal departments reported out through chairs to deans and onward to the Provost. A number of faculty expressed concern that there was no obvious accountability for outcomes of the CT process. One noted ‘it’s not what a Chair says, it’s what they do’. No metrics were evident at the college level for assessing what actions a department has taken and how well the chair has incorporated the findings of the CT process into departmental policy and practice. Interest in CT outcomes among college leaders suggests there is a general sense of the process being beneficial for the opportunity it provides for introspection. Increased attention by Deans to effective searches and to diverse pools supports the impact that the CT process has had in calling attention to assumptions and standard practices that may not have supported identification of a robust pool of candidates.

Chairs of most CT departments shared many of the beliefs of faculty with respect to the importance of more open dialogue about key issues related to hiring, promotion and tenure. A number also expressed interest in peer learning opportunities that could facilitate exchange of information among chairs across the university about effective practices. Given that there seem to be a few focal departments where the chair has taken little interest in the outcomes of the CT process, engaging the focal department chairs who have found important ways in which the process can advance their departments to show the way for other chairs makes sense. One such panel presentation by CT chairs was well-received by the chairs in attendance.

Continued focus on the particular characteristics of individual departments seems necessary, but it is also clear that there are many issues that are common to academic departments that faculty are interested in discussing. In any case, the value of the CT process has not yet permeated widely enough across the University to yield truly institutionally transformative results, although a promising groundwork is in place. From the perspective of those most involved in the process, the Equity Advisors and the ADVANCE Professors, the process of institutional transformation from the ‘bottom up’ has been remarkable and worth continuing. Success in hiring and promotion of STEM women, despite economic challenges, is seen as significant. From the April 2011 presentation by Equity Advisors and ADVANCE Professors to the ADVANCE Council, the percentage of women Full Professors has increased from 10% to 13.2% from 2006-2010, and the percentage of women Assistant Professors has increased from 26% to 31% in the same time period. In the focal departments, STEM women faculty increased by 20% compared to STEM non-focal departments. In 9 focal departments, women Full Professors increased 80%, compared to non-focal departments in which the increase in women Full Professors was 20%. The percentage of assistant professor hires that were women was slightly higher in the focal departments (31.2%) compared to 21 non-focal STEM departments (25.0%).

The Equity Advisors (EA) feature of the project is widely viewed as a success. We heard from many that the EAs are highly respected and visible across campus, including outside their own colleges, and serve as effective change agents for larger institutional goals. Faculty, appointed as Equity Advisors by the Deans, have been working in the office of the Dean of each of the three focal colleges (Engineering, Liberal Arts and Sciences, and Agriculture and Life Sciences). Recently, the College of Human Sciences added an Equity Advisor, and discussions are underway within the College of Veterinary Medicine to identify a person to serve in the EA role. At this point, there are no EAs in the other colleges, Business and Design.
The Equity Advisors have worked closely with the Associate Deans who represent the focal colleges on the ADVANCE Council. The Engineering and CALS Equity Advisors are regular attendees at the meetings of department chairs in their colleges; the LAS Equity Advisor visits department chairs’ meetings a few times each semester and currently chairs the LAS Promotion and Tenure Committee. The Equity Advisors have been the lead individuals in their Colleges for the departmental and search committee trainings offered through ADVANCE. They worked closely with the ADVANCE Professor in each of the focal departments in their colleges, as the departments moved through the data collection, reporting, action planning and implementation stages of the CT process. Equity Advisors have also played key roles in disseminating information about the policies and procedures regarding flexible careers that have been developed in the last several years. In the I-cubed proposal, which is now funded by NSF, the Equity Advisor role has been continued, and expanded to include all five STEM colleges.

External funding enabled the development of the Equity Advisor role, which gives focus to the work needed to improve the ability of the colleges to attract and retain talented and diverse faculty. After two years of full funding from the NSF award, the positions were continued with a combination of external (2/3) and internal (1/3) funding from the ADVANCE colleges. During the period of the I-cubed award, Equity Advisors will be fully supported with internal funds from their colleges. Associate Deans, who have often been responsible for the work now done by Equity Advisors, find that Equity Advisors are valuable colleagues in the Dean’s offices. Although these positions seem to be universally viewed as helpful, even necessary, no clear commitment is yet in place to continue the positions beyond the end of external funding. It is also not evident how future Equity Advisors will be trained for their role and what support for the role will be available centrally in terms of cross-college discussions or interaction with the Chief Diversity Officer following the end of the Faculty Fellow’s term. While training responsibilities appear to be part of the role of Faculty Fellow, that position is not currently expected to extend beyond two or three years.

ISU’s organizational restructuring and budgetary constraints make careful consideration of the important role played by Equity Advisors critical. In other institutions, a greater reliance on administrative staffing in the Provost’s office might substitute for Equity Advisor kind of work in the colleges. At Iowa State, however, the very modest staffing levels devoted to administrative work are not sufficient to supplant the active and informed role the Equity Advisors play in assisting with department and college searches, developing networking and mentoring, and in working on climate issues in departments. Although university representatives seem confident in the ongoing value of the Equity Advisors, there is no long-term commitment to keeping this function. In addition, with the end of the ADVANCE grant, it is not clear how the coordination, dissemination, and organizing services provided to the EAs by the ADVANCE Office will be provided. On-going organizational tasks, often invisible to those whose work is facilitated by them, are essential to the effective continuation of those initiatives in the ADVANCE portfolio deemed worth institutionalizing.

Institutional transformation beyond focal units

Resources and workshops initially developed by people in focal roles (e.g., co-PI Team members, Equity Advisors, ADVANCE Fellows and, to some extent, ADVANCE Professors) have been offered to a broadening audience of administrators and faculty from other ISU units. Most recently, for example, a presentation by an Equity Advisor has been scheduled for the search committee for Executive Vice President and Provost. These instances of outreach bring important insights and tools to members of the ISU community whose actions affect women’s recruitment, retention, and
advancement, and show the high regard which the trainings have earned. However, as noted in the case of focal units themselves, the individuals with whom we spoke did not perceive participants and invitees, more widely, as accountable for making use of the ADVANCE-linked knowledge, or even for attending events where it is presented. There is no ensuring that departmental search committees have an in-depth understanding of the questions that are permissible and those that aren’t, or an informed perspective on the flexible career and family-friendly policies available at ISU.

Department chairs and their training:

The fundamental importance of the academic department is a central principle guiding the ISU ADVANCE approach. As a corollary, departmental leaders (particularly heads, or chairs) are critical to the transformation of the institution. Responses from faculty on an exit survey indicate that department chairs are often a factor in individuals’ decisions to leave ISU. Because women in STEM faculty positions are often more isolated than their male peers, they may be more vulnerable to the shortcomings of a poorly functioning chair (even if that chair is not inequitable in how s/he treats women).

Training opportunities for department chairs have expanded in the last two years, with a monthly luncheon meeting (attendance is voluntary) hosted by the ADVANCE Co-PI and Associate Provost for Academic Personnel Bratsch-Prince. Unfortunately, attendance is quite variable; the most recent meeting, focused on department climate, had fewer than fifteen chairs in attendance. In addition to these opportunities for chairs in a continuing appointment, Dr. Bratsch-Prince has begun a series of meetings for new chairs. Combined with the trainings offered (formally or less so) by Equity Advisors, there appears to be an expectation that chairs will be more aware of practices to make departments hospitable to women faculty. Given the many roles that chairs must handle, it is important to monitor the breadth of training content as well as participation in these opportunities.

For example, it is important to have stronger training in fostering effective mentoring for colleagues at all levels; to insure the utilization of ideas in the impressive, concise overviews on mentoring in the pamphlets developed through ADVANCE. Similarly, repeated opportunities are desirable for hearing about and discussing the policy priorities of the institution’s leadership regarding faculty recruitment, retention, and diversification, as well as developing an enhanced understanding of the factors associated with open dialog and decreasing individual isolation in the department. Programs for chair professional development would be strengthened by including training on leadership and the research on the different ways male and female leaders, as well as leaders from underrepresented minority groups, are perceived. Interestingly, in the stakeholder survey conducted in 2010, a large proportion of the responding chairs and college administrators did not know if junior faculty were finding the mentoring program effective. It is expected that the monthly opportunities will contribute to training chairs about the importance of and tools for successful communication with junior faculty. It is highly recommended that a design for evaluating the invigorated chair training program be developed.

As we noted a year ago, ‘It seems evident that expanded or more effective department chair development would help support the use of policies that have been developed and endorsed by top institutional leadership, and that have transformative potential for the institution. As noted in guidelines from the Provost’s Office on salary support for recruiting and retaining tenured and tenure eligible faculty, ‘recruiting and retaining a talented, innovative and diverse faculty remains the university’s top priority.’ Each leadership level of the University should be equipped with the
tools and perspectives to implement this institutional priority. Fortunately ISU is not the first ADVANCE institution to face the challenge of providing support for chairs that facilitates engagement with ADVANCE goals, and there is a well-developed set of approaches that could be used in Ames.” Now that monthly meetings have been in place for more than a year, their efficacy in informing chairs should be assessed.

Peer training and support among department chairs are powerful tools, and can engage chairs in new ways of thinking about their leadership roles. The practice of informal gatherings by chairs suggests that there is considerable appeal to engaging with others in the same role, especially a role as complex as department chair. While groups of chairs find such informal gatherings helpful, there is a danger that this approach might undermine change if such gatherings are solely ‘gripe sessions’. It is not unusual for such informal groups to unintentionally make members of underrepresented groups feel more like outsiders. Even within formal settings, the culture of overwhelmingly male groups was noted by some attendees to typically include comments that would not be seen as appropriate in well integrated groups.

In recent months, several women have joined the ranks of department chairs, University-wide. This change is a positive development after a very long period of extreme underrepresentation, as noted repeatedly by the external advisors and evaluators. Setting up a mentoring system for all new chairs is recommended to ensure that those who have moved forward into leadership are successful, rather than leaving to chance the possibility that a new chair will find other more experienced chairs to advise him/her.

In addition, there has been a University level leadership task force which has been working for more than a year. At this time their report and recommendations are not yet available. The committee’s process has been thorough, consulting in depth with members of the community. It is likely that this approach will yield broad respect for the final recommendations. Finally, while the Emerging Leaders Academy provides a notable opportunity for training, a relatively small number of people are able to participate. Leadership development opportunities that require less formal commitment and seem necessary to encourage faculty to explore the possibilities of departmental leadership.

**Supporting women’s retention and advancement**

The process of institutional transformation undertaken at ISU has helped clarify the impact of departmental climate on women faculty’s retention and advancement, and resulted in greater attention to factors known to contribute to women faculty’s retention: a positive departmental climate (particularly related to sense of inclusion, transparency in the allocation of resources and responsibilities). Greater attention has also been paid to practices (including mentoring) that contribute to women’s professional development as researchers, educators, and active members of their profession (as editors, reviewers, and organizational leaders). The CT approach demonstrated the impact of greater transparency on departmental climate, as discussed above. Expanding the CT process beyond the focal departments, continuing and expanding department chair and search committee training, continuing interdepartmental networking opportunities, and developing mentor training were identified by STEM women at the end-of-project meeting as high priorities for the future.
Findings from the 2010 COACH survey show a positive trend with respect to tenure-track faculty satisfaction, including with formal mentoring (relative to peer institutions). While there is an institutional expectation that mentoring of non tenured tenure-track faculty exists in all departments, the meaning of the term and thus the actual practice of mentoring varies widely. At one extreme, in some departments the mentor is to submit a report each year on the performance of the “mentee.” This version of mentoring is understood in the literature to have a chilling effect on the protégé’s use of the mentor for advice and guidance in a difficult circumstance (whether related to teaching, research, work-life balance, or any other sphere). There are other departments in which this review and reporting role is explicitly excluded from the responsibilities of the mentor.

Often there is an assumption that a mentor should be expert in the area of the protégé’s research specialization. As such, the mentor is likely to be in the best position to assess the protégé’s performance. If, instead, a professor has a research area mentor and another colleague who mentors about other areas of professional life, this problem is mitigated or even eliminated. Another widespread assumption is that individuals know how to be effective mentors; the variant on this assumption is that individuals who are not skilled as mentors cannot become skilled as mentors. In the former case, little attention is paid to making effective matches, and no training is provided to mentors. In the latter case, the burden for mentoring is not shared equitably, and individuals of good will who might contribute to their colleagues’ experiences are not tapped. The issue of identifying and training mentors is likely to become more acute as retirements proceed and the proportion of faculty available to mentor decreases and the proportion eligible for being mentored increases.

The shortcomings of the mentoring situation as we encountered it appeared to stem directly from the more or less complete autonomy granted to the leadership of academic departments in how they meet the requirement that some mentoring be provided. Departments have significant discretion in their approach to mentoring to treat this any way they consider appropriate. In departments where there is some sense that mentoring might be done more effectively, there was no (at least no well-known) resource on campus that would provide information on promising practices in establishing a department level mentoring program. Resources developed through ADVANCE should help address this. We understand that a policy for mentoring associate to full professors has been implemented, and supporting resources for Chairs, Deans, and Mentors, and for Associate Professors were developed and are available on the ISU ADVANCE website. Greater attention to equipping faculty to be effective mentors and to additional approaches to mentoring would be helpful in keeping the trend of faculty satisfaction positive.

Formal mentoring of full professors is nonexistent. This is a missed opportunity for strengthening the academic achievements of full professors, helping them to develop previously less well developed skills (e.g., their ability to serve as effective mentors), and to explore leadership possibilities, both within the University (as center directors, for example) and within their professional organizations. There are more women in chair positions than in 2006, and a robust number of women in Dean Positions, but with respect to STEM women, there are few women Center and Institute Directors and Distinguished and University Professors. This is an area that needs improvement.

One initiative of the ADVANCE program aimed specifically at STEM faculty women of color provides funding for development of external mentoring relationships, a significant contribution in a community where few women colleagues of color are available. The number of individuals who have participated thus far is small, and a report on the outcomes of the total awardee group is
needed to inform the decision about future funding should await a report on the outcomes of the total awardee group. Regardless of its effectiveness for the awardees, we note that the difficulty of fostering community among the very small population of faculty women of color on campus remains a challenge for the University.

Conclusions and recommendations:

The ADVANCE project at ISU has undertaken an impressive breadth of work. We highlight the achievements below, along with recommendations for more effectively fulfilling their potential. ADVANCE at ISU has benefited from the significant efforts of many members of the community and from considerable funding. This report is intended to assist in strengthening the post-Federal funding impact of ISU ADVANCE and its organizational legacy.

● The “conversation has changed”

Our phone conversations this winter and our review of recent reports confirm our conclusion based on our October, 2010 meetings: the “conversation has changed” in many STEM units, regarding gender and practices that affect the pursuit of gender equity in the STEM faculty. This change has been of value as the institution considers how to forward, how to maintain the momentum of ADVANCE-informed initiatives and support their spread across the university and dissemination of these products to peer institutions. It is important to keep in mind that, as the participants in a conversation change, so too can the conversation. As new faculty, chairs, and administrators move into the ISU conversation, they may reintroduce alternative, more traditional views.

● Changing the conversation must be accompanied by changes to practice

Changing practice involves both the revision of formal rules (e.g., as we noted above, some departments have revised or are now revising their governance documents) and the expectation that those revisions will be followed, ensured by effective leadership. We recommend that a systematic record be kept at the Deans’ level or above of relevant practices to ensure that these changes in practice do continue consistent with these changes in conversation.

● Institutional change is most notable if it is lead from the top

With the emergence of a new leadership team at the University, members of the University community are clearly waiting to learn about how the accomplishments of ISU ADVANCE will be incorporated into institutional practice and policy.

● ADVANCE produced important tools for developing a greater understanding and commitment to factors affecting gender equity

So far, making full use of these tools appears to be at the discretion of those doing the work the tools are designed for (particularly departmental leaders, promotion and tenure committees and recruitment committees. It is our view that greater top down accountability is needed to fortify the value of tools developed through ADVANCE. For example, not all searches currently include pool data and describe ways in which departments actively sought out excellent candidates found in
diverse populations. This should be standard practice, and responsibility for developing tools such as pool data needs to be clearly defined and supported.

- **Deans and chairs are crucial to transformation**

The ISU ADVANCE Program, together with the Office of the Provost, has put in place tools to facilitate more effective recruitment and retention and now there needs to be a concerted focus by chairs and deans on the use of these tools.

Professional development that supports chairs’ overall effectiveness will contribute to their ability to lead their colleagues in transformation. The academic leadership of the ADVANCE colleges and departments has, for the most part, spoken enthusiastically about ADVANCE’s goals and initiatives. The development of monthly chair leadership development meetings and the development of training for new chairs are promising changes that seem essential to continue. As mentioned above, the voluntary character of attendance throws the effectiveness of these meetings into question; we recommend ongoing systematic oversight to assure involvement of all.

Most fundamentally, leadership effectiveness in the transformation work should be factored into evaluations and decisions about administrators’ appointment and reappointment. If transformative practices are important to ISU, there should be a clear way of assessing the effectiveness of department chairs in supporting the work of transforming their departmental practices. It would be a clear signal of institutional commitment to the goals articulated by the University if department chairs who were not active supporters of the CT process and outcomes were not reappointed.

In addition to the leaders of academic departments, the University's vibrant community of interdisciplinary centers and institutes provides another population of leaders who would benefit from training and who could be looked to for leadership of transformation processes.

- **Greater involvement of senior STEM women would strengthen ADVANCE**

Since our October 2010 visit, there seems to be evidence of greater visibility of senior women on campus. Senior STEM women numbers have increased because of a combination of promotions and appointments. As mentioned earlier, we believe that full professors would benefit from diverse leadership development opportunities. We encourage ISU to seek additional high-impact ways to engage senior STEM women, including through mechanisms such as inviting a group of senior STEM women to serve as advisors to the University leadership to help define the way forward.

- **Effective roles and processes for transformation exist at ISU.**

Functions performed by the Equity Advisors are central to transformation and now seem, by most accounts, to be central to effectiveness in a number of core processes such as recruitment. It will be important for ISU to think about how to integrate these functions fully into the institutional context. In order to prioritize for post-I-cubed, it will be essential that Deans continue to assess and articulate the value of the work of the EAs with respect to University goals.

CT has been shown both to have promise and to be resource intensive. While our earlier recommendation (February 2011 report) was that the ADVANCE teams develop a menu of common or frequent problems that could be made available to departments, together with a discussion of
approaches known to be efficacious, it seems that there is considerable interest in the process of self-study and conviction that it cannot be replaced by a list of common problems. There are high expectations that the Faculty Fellow to be appointed will be able to sort through options for moving forward with a process like CT. Integration of a process like this into periodic departmental reviews seems to be a promising approach, and if established as standard practice, could maintain and expand on the benefits the CT departments believe accrue as part of the process. Development of a model with less cost seems to be essential.

AFTER ADVANCE

ISU’s potential for transformation is well-evidenced by its change, perhaps as long as a decade ago, into an institution that supports and facilitates interdisciplinarity. Ahead of the curve on this national (or international) development, ISU appears to have surmounted well-known obstacles to interdisciplinary work. There is similar potential to enhance institutional productivity through preserving and extending the gains resulting from this NSF-funded award for institutional transformation. ISU is in an excellent position to make this happen, however it will be essential to design and establish an organizational home for this critical work.

Much of ISU ADVANCE’s work over the last six years has been coordinated through the ADVANCE office; much of that work can be characterized as invisible. Included are tasks like: planning meetings of involved faculty and staff, events for the larger community, trainings for personnel committees and department chairs, development and production of materials for dissemination at ISU and across the country, and maintenance of an up-to-date and user friendly website. To keep the momentum growing, adequate staffing is essential; as we have mentioned above, these are not responsibilities that can or should be fulfilled by a term-appointed, quarter-time Faculty Fellow with significant other dimensions to her work.

There is great enthusiasm for continuing, and for including all colleges in, the Equity Advisor mechanism. This is one of the strong outcomes of this project. We have some concern, however, that the amount of work expected of the Equity Advisors, who will be working without the Advance Professors who have been part of their teams, is unrealistic. Sharing some of this burden with other administrators within the college structures and with central administration will be essential to carrying out their function at the level that is anticipated. Similarly, expectations for what the one-quarter time Faculty Fellow can accomplish will only be met if the responsibilities are realistic and project-oriented.

Finally, there should be a plan for and a commitment to ensuring the regular collection of institutional data essential for assessing the impact of new and ongoing practices. We understand that the resources of Institutional Research are spread quite thin; however, to assess the efficacy of practices and to design appropriate improvements, the collection and evaluation of data in a timely way are required.
APPENDIX 6: PARTICIPANTS

(Information about participants and collaborators was submitted to NSF through the Fastlane system. Appendix 6 was compiled for the version of the Final Report that was prepared for the ISU community and our partners.)

ISU ADVANCE co-PI Leadership Team
Susan L. Carlson, Principal Investigator 2006-2010, Associate Provost for Faculty Advancement & Diversity
Elizabeth Hoffman, Principal Investigator 2010-2012, Executive Vice President & Provost
Sharon R. Bird, Research Director and co-PI 2006-2012, Department of Sociology
Bonnie S. Bowen, Executive Director and co-PI 2006-2012, Department of Ecology, Evolution and Organismal Biology
Dawn Bratsch-Prince, co-PI 2010-2012, Associate Provost for Academic Personnel and Chief Diversity Officer
Diane M. Debinski, co-PI 2006-2012, Department of Ecology, Evolution and Organismal Biology
Sandra W. Gahn, co-PI 2006-2012, Office of Institutional Research
Jill Bystydzienski, co-PI 2006-2007, Department of Sociology
Carla Fehr, co-PI 2006-2011, Department of Philosophy
Florence A. Hamrick, co-PI 2006-2010, Department of Educational Leadership & Policy Studies
Carolyn Heising, co-PI 2006-2007, Department of Industrial and Manufacturing System Engineering
Frankie Santos Lanaan, co-PI 2006-2008, Department of Educational Leadership and Policy Studies
Mike Larsen, Senior Personnel 2006-2007, Department of Statistics
Judy Vance, co-PI 2006, Department of Mechanical Engineering

Steering committee (2007-2011)
Bonnie Bowen (2007-2011)
Sharon Bird (2007-2011)
Dawn Bratsch-Prince (2010-2011)
Susan Carlson (2007-2010)

Transition Team (2011-2012)
Bonnie Bowen
Sharon Bird
Dawn Bratsch-Prince
Sandra Gahn
Lisa Larson

Equity Advisors
Katherine R. Bruna, College of Human Sciences (2011-2012)
Kristen Constant, College of Engineering (2009-2012)
Charles E. Glatz, College of Engineering (2007-2008)
Lisa Larson, College of Liberal Arts and Sciences (2007-2012)
Susan J. Lamont, College of Agriculture and Life Sciences (2010-2012)
Janette R. Thompson, College of Agriculture and Life Sciences (2007-2010)
Appendix 6: Participants

ADVANCE Professors (College of Engineering):
Kristen Constant, Department of Materials Science and Engineering (2007-2009)
Ralph E. Napolitano, Department of Materials Science and Engineering (2009-2011)
Shauna Hallmark, Department of Civil, Construction and Environmental Engineering (2008-2011)
Charles E. Glatz, Department of Chemical & Biological Engineering (2009-2011)

College of Liberal Arts & Sciences:
James W. Raich, Department of Ecology, Evolution and Organismal Biology (2009-2011)
Mark Gordon, Department of Chemistry (2008-2011)
Alan Goldman, Department of Physics & Astronomy (2009-2011)

College of Agriculture & Life Sciences:
Jo Anne Powell-Coffman, Department of Genetics, Development and Cell Biology (2007-2009)
Steven R. Rodermel, Department of Genetics, Development and Cell Biology (2009-2011)
Adam Bogdanove, Department of Plant Pathology (2009-2011)

Partners from Colleges
Lisa Nolan, former Associate Dean, College of Veterinary Medicine (2006-2011)
Claire Andreasen, Associate Dean, College of Veterinary Medicine (2011)
Joe Colletti, Senior Associate Dean, College of Agriculture and Life Sciences (2006-2011)
David J. Oliver, former Associate Dean, College of Liberal Arts and Sciences (2006-2011)
Carla A. Peterson, Associate Dean, College of Human Sciences (2009-2011)
Diane T. Rover, former Associate Dean, College of Engineering (2007-2009)
Balaji Narasimhan, Associate Dean, College of Engineering (2009-2010)
Gary Mirka, Associate Dean, College of Engineering (2011)

Other Partners
Connie Hargrave, Director Science Bound
Eugenio Matibag, Director, Center for American Intercultural Studies
Karen Zunkel, Director, Program for Women in Science and Engineering
Adin Mann, Assistant Dean, Graduate College

ADVANCE Faculty Fellows
Frankie Santos Laanan (Spring 2007)
Bonita Glatz (Spring 2008)
Mary Harris (2008-2009)
Annette O’Connor (2009-2010)
Kristen Constant (Summer 2010)
Loreto Prieto (2010-2011)
Diane Rover (2010-2011)
Appendix 6: Participants

Advisors to the ISU ADVANCE Program

Internal Advisory Council
- Elizabeth Hoffman, Executive Vice President and Provost (2007-2012)
- John Thomson, Dean, College of Veterinary Medicine (2006-2010)
- Lisa Nolan, Dean, College of Veterinary Medicine (2011-2012)
- Pamela White, Dean, College of Human Sciences (2006-2012)
- Michael B. Whiteford, Dean, College of Liberal Arts and Sciences (2008 - 2011)
- David Oliver, Interim Dean, College of Liberal Arts and Sciences (2011 - 2012)
- Beate Schmittmann, Dean College of Liberal Arts and Sciences (2012)
- Mark Kushner, Dean College of Engineering (2006-2008)
- Jonathan Wickert, Dean, College of Engineering (2009-2012)
- Wendy K. Wintersteen, Dean, College of Agriculture and Life Sciences (2006-2012)

External Advisors
- Ronda Callister, Ph.D., Utah State University
- Jacquelyn Litt, Ph.D., Douglass Residential Center, Rutgers University
- Caroline Sotello Viernes Turner, Ph.D., California State University, Sacramento
- Claire Van Ummersen, Ph.D., American Council on Education

Graduate Students and Post-doctoral Research Associates
- Rebecca Sremack, 2006-2008, Department of Sociology
- Jason L. Pontius, 2007-2009, Department of Educational Leadership & Policy Studies
- Divinity B. O'Connor-Roberts, 2007-2008, Department of Sociology
- Chris Chandler, 2008, Department of Ecology, Evolution & Organismal Biology
- Laura Rhoton, 2008-2010, Department of Sociology
- Craig Chatriand, 2009-2010, Department of Educational Leadership & Policy Studies
- Trina J. Ramirez, 2009-2011, Department of Educational Leadership & Policy Studies
- Marilyn Cornish, 2010-2011, Department of Psychology
- Molly Sween, 2010-2011, Department of Sociology
- Catherine Duthie, 2011, Interdisciplinary Graduate Studies
- Joshua Mitchell, 2012, School of Education
- Agustina Purnamasari, 2012, School of Education

Program Staff
- Susan Masters, Program Assistant 2006-2008
- Nicol Jones, Program Assistant 2008-2011
- Diane Smith, Program Assistant 2011

ADVANCE Undergraduate Students
- Brandi Geisinger (2007)
- Renae Kroneman (2007)
- Jessica Romaine (Spring & Summer 2007, Summer & Fall 2008)
- April Walker (Spring & Summer 2007)
- Britney Peterson (Spring 2008)
- Abby Paul (Fall 2010 - Spring 2011)
- Kaci McCleary (Summer 2011 & 2012)
- Claire Sural (Spring 2012)
Appendix 6: Participants

The ISU ADVANCE Program was involved with the following organizations and collaborators during Years 3, 4, 5 and 6. These are organized into two groups, beginning with the organizations and collaborators beyond Iowa State University and followed by the organizations and collaborators within Iowa State University.

### Beyond Iowa State University:

- 17th annual C. elegans Meeting (meeting hosted paper presentation Year 3)
- American Association of Colleges & Universities Conference ‘Defining the Professoriate for the 21st Century (paper presentation Year 3)
- American Ornithologists' Union Meeting (poster presentation Year 4)
- American Society for Engineering Education Conference (paper presentation Years 3, 4 and 5)
- Associate for Institutional Research (AIR) Annual Forum (Year 3)
- American Sociological Association (Year 6)
- Association of American Universities Data Exchange (Year 6)
- Association for the Study of Higher Education National Conference (Year 5)
- Association of Women in Science (Year 6)
- Big 12 Workshop on Faculty Diversity (Year 4)
- COACHE (Collaborative on Academic Careers in Higher Education)
- COS/AOU/SCO Meeting (co-chair of Symposium Year 4)
- Ecological Society of America Conference (poster session Year 5)
- Gender, Work and Organization International Conference (Year 5)
- International Association for Women Philosophers (presentation Year 5)
- Iowa Network for Women in Higher Education
- Middlebury College (presentation Year 5)
- Midwest Regional ADVANCE Meeting (Year 5)
- Midwest Sociological Society (Year 6)
- National Women's Studies Association Annual Conference (presentation Year 5 and 6)
- NSF Joint Annual Meeting (Years 3, 4, 5 and 6)
- NSF PI Meeting (poster presentations Years 3, 4 and 5)
- Pacific Sociological Society (presentation Years 4 and 5)
- Society for Conservation Biology (poster presentation Year 6)
- Southern Sociological Society Meetings (paper presentation Year 3)
- University of North Dakota, Institute for Philosophy in Public Life (presentation Year 5)
- University of North Carolina, Charlotte (presentation Year 5)
- University of Waterloo Department of Philosophy (presentation Year 5)
- Way Up Conference (panel discussion Year 4)
- Wellesley College (presentation Year 5)
- Western Academic Leadership Forum (paper presentation Year 3)
- Work-Family Network (invited presentations Year 6)
- Women in Science Conference (Year 4)

**External Advisors:**
- Dr. Jacqulyn Litt, University of Missouri-Columbia and Rutgers University
- Dr. Ronda Callister, Utah State University;
- Dr. Caroline Sotello Viernes Turner, Arizona State University and Cal State Sacramento
- Dr. Claire Van Ummersen, American Council on Education
Appendix 6: Participants

- Discussions with faculty from other campuses during Years 3, 4, 5 and 6
  - Dr. Cindy Anderson, Ohio University
  - Dr. Kristi Anseth, University of Colorado-Boulder
  - Dr. Diana Billimoria, Case Western Reserve University
  - Dr. Suzanne Zurn Birkhimer, Purdue University ADVANCE
  - Dr. Barbara Block, Stanford University
  - Dr. Dana Britton, University of Kansas
  - Dr. Jill Bystydzienski, The Ohio State University
  - Dr. Ronda Callister, Utah State University
  - Dr. Ellen Damschen, Washington University – St. Louis
  - Dr. Henri Darmon, McGill University
  - Dr. Mary D. Delany, University of California – Davis
  - Dr. Anand Desai, The Ohio State University
  - Dr. Faye Dong, University of Illinois, Urbana-Champaign
  - Dr. Christina Falci, University of Nebraska – Lincoln
  - Dr. Bonnie Fleming, Yale University
  - Dr. Sarah Fortune, Harvard School of Public Health
  - Dr. Karie Frasch, UC Berkeley Family Friendly Edge
  - Dr. Lisa Frehill, Commission on Professionals in Science and Technology
  - Dr. Sharon Glotzer, University of Michigan
  - Dr. Caroline Harwood, University of Washington-Seattle
  - Dr. Joan Herbers, The Ohio State University
  - Dr. Karen Horton, University of Maine
  - Dr. Jacqueline Hughes-Oliver, North Carolina State University
  - Dr. Sheila Innis, Child and Family Research Institute, University of British Columbia
  - Dr. Barbara Jacak, State University of New York-Stony Brook
  - Dr. Kasi Jackson, West Virginia University
  - Dr. Susan Johnson, University of Iowa
  - Dr. Mary Juhas, The Ohio State University
  - Dr. Laura Kramer
  - Dr. Peggy Layne, Virginia Tech
  - Dr. Gretal Leibnitz, Washington State University
  - Dr. Margaret Leinen, University of Rhode Island
  - Dr. Jackie Litt, University of Missouri – Columbia and Rutgers University
  - Dr. Susan J. Lolle, University of Waterloo
  - Dr. Bo Lönnerdal. University of California - Davis
  - Dr. Anne Massaro, The Ohio State University
  - Dr. Gillian McLellan, University of Wisconsin – Madison
  - Dr. Julia McQuillan, University of Nebraska – Lincoln
  - Dr. Carolyn Merry, The Ohio State University
  - Dr. Michelle Miller, Southern Illinois University
  - Dr. Nancy Moran, Yale University
  - Dr. Scott Page, University of Michigan
  - Dr. Jan Rinehart, Rice University ADVANCE
  - Dr. Lisa Robertson, University of Houston
  - Dr. Patricia Roos, Rutgers University
  - Dr. Barbara Ryder, Rutgers University
  - Dr. Surendra P. Shah, Northwestern University
  - Dr. Jennifer Sheridan, University of Wisconsin – Madison
  - Dr. Linda Siebert, University Illinois Chicago ADVANCE
  - Dr. Caroline Sotello Viernes Turner, Arizona State University and Cal State Sacramento
Appendix 6: Participants

Dr. Nancy Steffen-Fluhr, New Jersey Institute of Technology
Dr. Bridget Strutchbury, York University in Toronto
Dr. Kim Sullivan, Utah State University
Dr. Timothy M. Swager, Massachusetts Institute of Technology
Dr. Klaas van Breugel, Delft University of Technology
Dr. Richard Webby, St. Jude Children's Research Hospital
Dr. Kim Weedon, Cornell University
Dr. Amy Wharton, Washington State University
Dr. Susan Williams, The Ohio State University
Dr. Lixia Zhang, University of California - Los Angeles
Dr. Katrina Zippel, Northeastern University

ADVANCE Portal Advisory Committee
Boston University, women of Biology
Lehigh University ADVANCE Program
North Dakota State University ADVANCE Program
Northeastern University ADVANCE Program
The Ohio State University ADVANCE Program

Within Iowa State University:

- College of Agriculture and Life Sciences Department Chair Search Committees
- College of Agriculture and Life Sciences Dean's Cabinet
- College of Agriculture and Life Sciences Faculty
- College of Agriculture and Life Sciences Faculty Search Committees
- College of Agriculture and Life Sciences – Liberal Arts and Sciences College Leadership Council
- College of Agriculture and Life Sciences Strategic Planning Committee
- College of Engineering Academic Council
- College of Engineering Cabinet
- College of Engineering Chair Search Committee
- College of Engineering Dean Search Committee
- College of Engineering Diversity Committee
- College of Engineering Faculty
- College of Engineering P&T Committee
- College of Engineering Women Faculty Lunch
- College of Liberal Arts and Sciences Dean's Cabinet
- College of Liberal Arts and Sciences Dean Search Committee
- College of Liberal Arts and Sciences Diversity Committee
- College of Liberal Arts and Sciences New Faculty Orientation
- College of Liberal Arts and Sciences Promotion & Tenure Committee
- Department of Aerospace Engineering Chair Search Committee
- Department of Aerospace Engineering Faculty
- Department of Agricultural and Biosystems Engineering Chair Search
- Department of Agricultural and Biosystems Engineering Faculty
- Department of Animal Science Faculty
- Department of Biosciences Search Committee
- Department Chairs' Workshop Series
- Department of Chemical and Biological Engineering Retreat
- Department of Civil, Chemical and Environmental Engineering Search Committee
- Department of Educational Leadership and Policy Studies Faculty
Appendix 6: Participants

- Department of Electrical and Computer Engineering Chair Search Committee
- Department of Electrical and Computer Engineering Faculty
- Departments of Horticulture and Agricultural Education and Studies
- Department of Industrial Manufacturing Systems Engineering Faculty
- Department of Materials Science and Engineering Retreat
- Department of Mechanical Engineering Chair Search Committee
- Department of Mechanical Engineering Faculty
- Department of Mechanical Engineering Faculty Search Committee
- Department of Natural Resource Ecology and Management Faculty
- Department of Plant Pathology Faculty
- Department of Psychology Faculty
- FIRES—Faculty Initiatives to Recruit and Retain Excellence in STEM
- George Washington Carver Internship Orientation
- Greenlee School of Journalism and Mass Communication
- Human Resource Services
- Iowa State PWISE Leadership Conference
- Iowa State University Provost Search Committee
- ISCORE Conference
- President and Provost’s Chairs Luncheon
- Strengthening the Professoriate @ ISU (SP@ISU) I3 Award Leadership Team
- University Chairs' Cabinet
- University Committee on Women
- Vice President for Extension Search Committee
- Vice President of Research and Economic Development
- Women's Leadership Consortium
- Internal Advisory Board:
  - Dr. Pamela White, Dean, College of Human Sciences
  - Dr. Elizabeth Hoffman, Executive Vice President and Provost
  - Dr. Lisa Nolan, Dean, College of Veterinary Medicine (starting Jan 2011)
  - Dr. John Thomson, Dean, College of Veterinary Medicine (through Jan 2011)
  - Dr. Jonathan Wickert, Dean, College of Engineering
  - Dr. Wendy Wintersteen, Dean, College of Agriculture and Life Sciences
  - Dr. Michael Whiteford, Dean, College of Liberal Arts and Sciences (through June 2011)
  - Dr. David Oliver, Interim Dean, College of Liberal Arts and Sciences (July 2011-March 2012)
  - Dr. Beate Schmittmann, Dean, College of Liberal Arts and Sciences (starting April 2012)
ISU ADVANCE Project Outcomes for General Public

Over the past six years, the Iowa State University (ISU) ADVANCE Program has become Iowa State’s most prominent program to recruit, retain, and advance women and women of color in science, technology, engineering and mathematics (STEM) faculty positions. Our approach focused on improving departmental cultures, practices, and structures, as well as university policies, through participation of individuals at all levels of the university. The ISU ADVANCE Program included both “bottom up” and “top down” approaches. Our “bottom up” activities included our signature program at the department level, in which faculty members and department chairs worked to improve the working environment in their departments. We also engaged in “top down” activities that addressed policies and practices at the college and university levels. The ISU ADVANCE Program focused on four primary goals:

1. Overcome known barriers to women’s advancement across ISU STEM fields, focusing on transparency, isolation, mentoring, and career flexibility.
2. Overcome department-specific barriers to women’s advancement in STEM.
3. Increase overall participation and advancement of women faculty in senior and leadership ranks.
4. Institutionalize positive changes at the university level.

At the university level, we focused on identifying subtle and overt barriers to equity and implementing policies to dissolve these barriers. We hosted networking events, workshops, lectures, and a national meeting on faculty flexibility. We launched a mentoring program for women faculty of color. ISU’s Office of Institutional Research annually compiled data about the number of ISU faculty. We developed working partnerships with leaders across campus to 1) increase the transparency of decision-making and faculty evaluation, 2) institutionalize flexible career options, 3) enhance the process for accommodating dual career partners, 4) strengthen and expand mentoring efforts, 5) expand training for department chairs, 6) increase awareness of issues for women in science and engineering fields, and 7) expand opportunities for professional development specifically for women faculty of color.

At the department level we developed a process for transformation that included (1) focus groups and faculty interviews to discuss department culture, practice and structure, (2) meetings and training sessions tailored to meet the unique needs of individual departments, and (3) collaborative problem-solving sessions involving department faculty and ADVANCE program leaders. Focal departments made both small scale and large changes to their governance documents, and advances were made in promotion and tenure policies, work-life balance, recruitment and hiring, utilization of departmental resources, and the number of women Full Professors.

The ISU ADVANCE Program can claim success as measured by changes in the number of women faculty as well as changes in faculty satisfaction. From 2006 to 2011, there have been increases in the percent of women deans, department heads, higher level academic leaders, and Full Professors university wide. During this time, the number of women faculty promoted from Associate to Full Professor increased, and this increase was particularly striking in the departments that participated in our signature departmental program. Survey data indicated that faculty satisfaction improved in several areas related to work and home, including ISU’s support for raising children and making the tenure-track compatible. ISU will continue key components of ISU ADVANCE in the future. Our signature department-level program will now be implemented across campus as a part of the departmental review process. Senior faculty
members will continue to lead and represent the ADVANCE Program at the college level and at the university level. An ADVANCE Faculty Fellow, housed in the Provosts Office, is leading the institutionalization of these efforts. In summary, significant progress has been made as a result of the NSF Institutional Transformation award and a culture appreciative of the value of this change has been created.

We can point to several specific aspects of our program that demonstrate the National Science Foundation's priority for broader impacts:

- During the years of the ISU ADVANCE Program, the number of women in leadership, including those serving as department chairs, has increased substantially. Our mentoring program for women faculty of color met with great success, demonstrated by promotions at ISU and the fact that several received prestigious awards.
- Our signature department-level program, which addressed faculty work practices, was implemented in a small number of departments. It has been successful in those departments and campus leaders have decided to expand the program to additional departments, even beyond the science and engineering fields.
- The impact of ISU ADVANCE will extend beyond Iowa State, including the University of Iowa and the University of Northern Iowa. Successful programs, including practices for faculty hiring, will be shared with these campuses.
- Faculty who participated in the ISU ADVANCE Program presented information about our successes to professional organizations in their fields, including biology, engineering, sociology, and philosophy.