WOMEN IN SCIENCE AND ENGINEERING SYSTEM TRANSFORMATION (WISEST)

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UNIVERSITY OF ILLINOIS AT CHICAGO (UIC)
CHICAGO, IL

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Civil and Materials Engineering: Farhad Ansari
Computer Science: Robert Sloan
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Mechanical and Industrial Engineering: Farzad Mashayek

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Chemistry: Luke Hanley
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WISEST PROGRAM SUMMARY

The UIC WISEST (Women in Science and Engineering System Transformation) Program was supported by a NSF $3.3 million ADVANCE grant from August 1, 2006 to July 31, 2012.\(^1\) WISEST began prior to the NSF funding in the summer of 2003 as one of the programs at the UIC Center of Research in Women and Gender (CRWG). Its overall goal is to increase the number, participation, and leadership status of minority and majority women in academic science and engineering through institutional transformation. It continued to be administered by the CRWG during the grant. Since the end the grant, WISEST has been institutionalized as a campus program housed in the Office of the Vice Provost for Faculty Affairs.

During the NSF grant period, the Program was guided by campus leadership including the Vice Chancellor for Academic Affairs and Provost, the Vice Provost for Faculty Affairs, the Vice Chancellor for Research, the Dean of the College of Engineering and the Dean of Liberal Arts and Sciences. Around the time when WISEST received its NSF funding, the Provost appointed a senior faculty member to serve as its first Special Assistant to the Provost for Diversity, who spearheaded the campus strategic thinking and planning process for diversity to “fully actualize our commitment to integrating diversity into our core mission and daily activities.”\(^2\) The goal of WISEST had been an integral part of this campus commitment to diversity.

WISEST Organizational Structure: Change Agents for Institutional Transformation

The WISEST organizational structure contained features that ensured institutional accountability and warranted institutional commitment to the WISEST mission. Three groups of change agents within WISEST corresponded to the three elements within the Architecture of Inclusion framework identified by Susan Storm (2006)\(^3\) as essentials for institutional transformation: namely, organizational catalysts, institutional intermediaries and institutional citizenship.

- WISEST leadership was defined by the leadership role held by individuals and not by specific individuals. Those assuming the role of Provost, Vice Provost for Faculty Affairs, Dean of Engineering and Dean of Liberal Arts and Sciences continued to lead the program ensuring institutional commitment to the WISEST mission. They, together with other members of the WISEST Executive Committee, were the organizational catalysts who held “leadership positions …. situated at the intersection of organizational domains and, as a result, have the ability to use their knowledge, relationships, and credibility to create institutional change.”

- WISEST commissioned the support of two external bodies, its External Advisory Committee and its External Evaluation Team. Together with NSF, these two external bodies were the institutional Intermediaries who “…. use their ongoing capacity-building role within a particular occupational section to build knowledge …. introduce incentives …. and provide accountability.”

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\(^1\) Including a one-year no-cost extension, August 1, 2011 to July 31, 2012.


The Faculty-Facilitator model is an important element of the WISEST Structure. The WISEST Facilitators contributed significantly to its success. Together with the STEM Heads and STEM faculty, they were the institutional citizenship that “create the conditions enabling women (and men) to participate fully and equally as citizens of the institution.”

**WISEST Key Programs (2006-2012)**

With resources provided by NSF and UIC units (including the Office of the Vice Chancellor for Academic Affairs and Provost, Office of the Vice Chancellor for Research, as well as those of the Deans of the Colleges of Engineering and Liberal Arts and Sciences), WISEST initiated and implemented numerous programs both for the 11 departments in STEM (Science, Technology, Engineering and Mathematics) disciplines it targeted and for the entire institution as it aimed at institutional transformation. Through these programs, WISEST:

- Provided start-up support (2006-2012) to 15 new STEM women hires.
- Initiated programs to increase awareness of unconscious gender bias including
  - SUCCEED training for faculty search committees (2006-2012 and continuing) and for faculty promotion and tenure committees (2010-2012 and continuing).
  - Town hall meetings (2006-2012) with vignettes and follow-up discussions.
  - First Lecture for engineering students (2010-2012 and continuing).
  - Leadership seminars (2006-2012) including two on student evaluation of teachers.
- Contributed to the implementation/revision of work-life friendly policies that benefited all faculty at UIC including
  - 1 revised policy: Partner Accommodation Policy in March 2011.
- Supported work-life friendly programs to retain stellar faculty including
  - Infant/Toddler/Child and Elder Care Resources and Referral Program (piloted in April 2010 and became permanent in April 2011 and continuing).
  - Women in Science and Engineering Research (WISER) Funds (2006-2012) to help faculty get their career back on track after a period of intensive care giving.

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4 In this report, year X - year Y refers to the period from August 16, Year X to August 15, Year Y. 2006-2012 therefore refers to the period between from August 16, 2006 to August 15, 2012.

5 Research (including those by Nosek B. A., M. R. Banaji and A. Greenwald who maintain the educational website at https://implicit.harvard.edu, designed to increase awareness of unconscious biases, including gender bias) show even “individuals who consciously refute gender and science stereotypes can still hold that belief at an unconscious level,” and “those beliefs and implicit biases may be more powerful than explicitly held beliefs and values simply because they are not aware of them.” Hill C., C. Corbett, and A. St. Rose, *Why So Few? Women in Science, Technology, Engineering, and Mathematics*, AAUW, 2010. http://www.aauw.org/learn/research/upload/whysofew.pdf).

6 Research provides evidence that supporting faculty work-life balance is a key to attract and retain female faculty (Hill, C., C. Corbett, and A. St. Rose; 2010).
• Expanded and improved mentoring\textsuperscript{7} and networking opportunities for STEM women including
  o WISEST Assistant Professor Initiative (WAPI; 2010-2012 and continuing) to offer mentoring and training seminars for STEM assistant professors.
  o STEM women networking luncheon (every semester from 2006 to 2012 and continuing).
  o WISEST leadership seminars and visiting scholars program (2006-2012).

• Continued to support the effective Faculty-Facilitators model (2006-2012 and continuing). WISEST Facilitators were instrumental to many WISEST initiatives including the SUCCEED faculty search training, the Postdoctoral Research Associates for Academic Diversity (PRAAD) Program, the Postdoctoral Institute for Career Development and Academic Diversity (WISEST Postdoctoral Institute), the WISEST Assistant Professor Initiative (WAPI), the Visiting Scholar program, Leadership Seminars and Lactation Room Support.

• Instituted incentives for STEM Heads to develop annual action plan to improve faculty work climate and provided them training to effectively develop those plans (2006-2012).

• Implemented an innovative postdoctoral program: Postdoctoral Research Associates for Academic Diversity (PRAAD, 2007-2009) to recruit and prepare 5 underrepresented minority STEM women for an academic career. It had a number of features distinct from those in a traditional postdoctoral program, including a Postdoctoral Institute.

• Established the STEM database and tracking systems to improve the ability to track and report on gender equity in STEM.

\textbf{WISEST Assessment Effort}

The WISEST assessment teams collected quantitative and qualitative data and conducted studies to evaluate the impact of the WISEST programs.

• Quantitative data included a series of 12 tables on STEM faculty data related to the NSF required outcomes as well as additional outcomes that were specific to UIC STEM population (2005-2012).

• Qualitative data included 9 sets of interviews, focus groups and surveys with various WISEST stakeholders (2006-2012).

• Studies included a salary equity study (2007-2008), faculty exit interview (2008-2009) and a faculty work climate survey (2011) as a follow-up of the 2004 faculty work climate survey.

\textsuperscript{7} Ensuring mentoring for all faculty is another key cited in the literature as important to attract and retain female faculty (Hill, C., C. Corbett, and A. St. Rose; 2010).
WISEST Major Outcomes

WISEST quantitative and qualitative assessment as well as survey results provided evidence that its programs had resulted in significant outcomes highlighted below:

- From 2005 to 2012, STEM women increased both in number (from 34 to 48) and as a percentage of faculty (13.8% to 20.8%).

- STEM women thrived at UIC. From 2005 to 2012, 20.5% (5 out of 24) of the female assistant professors hired between 2006 and 2012 received the prestigious NSF CAREER award. STEM women stayed (91% retention rate during the period 2005-2012) and they were tenured and promoted (86% rate during the period 2005-2012).

- From 2005-2012, URM (underrepresented minority) STEM faculty (women and men) increased in number (from 10 to 15) and as a percentage of STEM faculty (from 4.0% to 6.5%). Also, URM STEM women increased in number (from 4 to 8), as a percentage of STEM women (11.8% to 16.7%) and as a percentage of all faculty (1.6% to 3.5%) during the same period.

- The WISEST PRAAD is an exemplary pilot program for increase in representation and advancement of URM STEM women. It has a number of features distinct from traditional postdoctoral programs (including 5 postdocs hired by WISEST as a cohort to conduct research in the areas of their choice, being mentored by a cadre of mentors and trained by a monthly series of seminars), which contributed to its success.

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8 Also, STEM women representation was 15.4% in Academic Year (AY) 2007-2008 in UIC. By comparison, 14.9% of faculty in corresponding academic science and engineering departments as a percentage of all faculty in the top 100 research universities was women in AY 2007-2008, according to Nelson, D. and C. N. Brammer (2010) A National Analysis of Minorities in Science and Engineering Faculties in Research Universities http://faculty-staff.ou.edu/N/Donna.J.Nelson-1/diversity/Faculty_Tables_FY07/07Report.pdf. The corresponding departments in Nelson and Brammer included Chemical Engineering, Civil Engineering, Computer Science, Electrical Engineering, Mechanical Engineering, Biological Sciences, Chemistry, Earth Science, Mathematics and Statistics and Physics.

9 By comparison, 12.9% (4 out of 31) newly hired male assistant professors in UIC received this prestigious award. Moreover, in total (2006-2012), 9 (47.4%) out of the 19 UIC recipients of this award were women.

10 Also, the retention rate for STEM women assistant professors was 89.2%. By comparison, Kaminski and Geisler showed that less than half of STEM women assistant professors in 14 universities were retained at their universities within 11 years of being hired. Kaminski and Geisler. (2012) Survival Analysis of Faculty Retention in Science and Engineering by Gender. Science, http://www.sciencemag.org/content/335/6070/864.full.pdf?sid=70d583c8-506a-4bb6-9f4a-19384a6c285d.

11 Two women assistant professors left during her probationary period. Adding them as those who would not be promoted and tenured at UIC, the rate of promotion and tenure for women assistant professors was 75.0%. By comparison, Kaminski and Geisler data showed that 64.2% of STEM women assistant professors in 14 universities were promoted and tenured at the same institution.

12 By comparison, in the top 100 research universities, URM faculty as a percentage of all faculty in corresponding academic science and engineering departments was 6.0% in AY 2007; URM women as a % of women faculty and URM women as a % of all faculty in corresponding academic science and engineering departments were, respectively, 14.5% and 0.9% in AY 2007 (Nelson and Brammer, 2010).

13 From qualitative data gathered by the WISEST Internal Evaluation Team in 2009 interviews with the WISEST postdocs http://www.uic.edu/depts/oaa/wisest/qualitative_education.html.
postdoctoral research associates secured appointments with research universities and three of them became tenure-track assistant professors.

- STEM women felt that their department heads had become more supportive. Many found that their departmental climate had been more welcoming.\(^{14}\)

- Despite having gone through three years of salary freeze and one year with mandatory furlough days due to declining fiscal state support during this period, faculty became more satisfied\(^{15}\) with their current position and career progression as assessed by two faculty work climate surveys conducted in 2004 (prior to the grant) and 2011 (towards the end of the grant).
  
  - STEM women became more satisfied with their current position (80.6% being "satisfied" in 2011 compared to 79.2% in 2004) and with their career progression (86.1% being "satisfied" in 2011 compared to 75.0% in 2004). More importantly, the percentage being "very satisfied" with their position almost doubled (from 16.7% to 27.8%) and that being "very satisfied" with their career progression more than tripled (from 12.5% to 38.9%).
  
  - All faculty surveyed also became more satisfied with their current position (79.1% being "satisfied" in 2011 compared to 69.5% in 2004) and with their career progression (81.9% in 2011 compared to 76.9% in 2004); with more than 10 percentage points increase in "being very satisfied" for both their position and career progression.
  
  - Increase in faculty satisfaction in both current position and career progression was observed for both STEM and non-STEM disciplines and both for women and men, as reflected by the results of the 2004 and 2011 faculty work climate surveys. It is important for WISEST that advancing STEM women also benefited all faculty as its goal was to increase STEM women participation and advancement through institutional transformation.

**WISEST Dissemination**

Through numerous presentations and publications during the grant, WISEST shared with the ADVANCE community its products, which had specific features that distinguished them from similar products developed by other institutions in the ADVANCE community. With a good understanding of their merits, they could be adapted to be implemented in other institutions to increase advancement and participation of STEM women through institutional transformation. These products included:

- **WISEST organizational model:** WISEST mapped within its structures three groups of change agents which played the roles of the three elements in the Architecture of Inclusion framework (Susan Storm; 2006) that were key for institutional transformation: namely, organizational catalysts, institutional intermediaries and institutional citizenship.

\(^{14}\) From qualitative data gathered by the WISEST Internal Evaluation Team in 2009 interviews with STEM women faculty and 2011 interviews with recipients of WISEST start-up support [http://www.uic.edu/depts/oaa/wisest/qualitative_education.html].

\(^{15}\) Job satisfaction is a key to faculty retention (Hill, C., C. Corbett, and A. St. Rose; 2010).
Also, with its leaders defined by roles (not individuals) the WISEST structure guaranteed continued campus leadership.

- **WISEST Faculty-Facilitator model**: WISEST Facilitators who served as the champions for STEM women were senior faculty members from the same discipline as the STEM women. Eleven facilitators, one appointed in each department, worked individually and as a group to serve as mentors for STEM women, advocates of the WISEST mission in their departments, as well as linkages between the STEM faculty and the campus leadership.

- **WISEST SUCCEED training program**: WISEST SUCCEED training was delivered by the WISEST Faculty-Facilitators to increase awareness of unconscious gender bias in faculty search and promotion and tenure consideration. The trainers were scientists and engineers who could relate well with their colleagues the issue of having possible unconscious gender bias from their personal experience.

- **WISEST unique postdoctoral program**: The WISEST PRAAD had innovative features unlike that of a traditional postdoctoral program. These features contributed to the success of its postdoctoral associates.

- **WISEST “First-Lecture” for engineering students**: Senior faculty members delivered presentations to students on their first day of classes to increase their awareness of unconscious gender bias setting the tone for a positive learning environment built on mutual respect and inclusion.

**WISEST Beyond NSF ADVANCE**

Since the end of the grant, a number of WISEST programs have been institutionalized in UIC with expectation to be expanded beyond the 11 STEM departments in the future.

- WISEST has been integrated into the Office of the Vice Provost for Faculty Affairs with a new Director and funding from the Provost.

- SUCCEED training has been made mandatory for faculty search committees and promotion and tenure committees in the Colleges of Engineering and Liberal Arts and Sciences. It also has become part of the annual orientation for the Campus Promotion and Tenure Committee.

- The WISEST Faculty-Facilitators continue to be funded by the Provost and the Deans in the 11 STEM departments.
I. HISTORY of WISEST

The overall goal of the WISEST (Women in Science and Engineering System Transformation) program is to increase the number, participation, and leadership status of minority and majority women in academic science and engineering through institutional transformation. WISEST is an important part of UIC’s longstanding commitment to diversity. It began in summer of 2003 as a small program in the UIC Center for Research in Women and Gender (CRWG) housed in the Office of the Vice Chancellor for Research, serving 11 STEM departments in the College of Engineering and the College of Liberal Arts and Sciences (LAS). It has been since then expanded and became a program in the UIC Office of the Vice Provost for Academic Affairs (OVPFA) in Fall of 2012, with funding of an NSF ADVANCE IT grant (2006-2012) and continued commitment and support from the Vice Chancellor for Academic Affairs and Provost (the Provost). As UIC began its strategic planning on diversity in Fall 2008, the goal of increasing and retaining STEM women also became an integral part of that process.

a. WISEST 2003-2006

WISEST began in Summer 2003 as a faculty arm of WISE (Women in Science and Engineering), a program that supports STEM women students. Both WISE and WISEST were housed in the CRWG. With a small NSF grant and additional funding support from the Provost and the Vice Chancellor for Research in 2004, WISEST embarked on a number of programs including the development of a faculty search committee training to heighten awareness of unconscious gender bias and leadership seminars featuring nationally known speakers on unconscious gender bias research and STEM climate issues. WISEST also launched the Faculty-Facilitator model. Faculty-Facilitators were senior research-active faculty, one in each of the 11 STEM departments in the Colleges of Engineering and LAS. The role of the WISEST Faculty-Facilitators was to work with the departments and campus leadership to improve the faculty work climate and to increase awareness of unconscious gender bias in faculty recruitment. In addition, WISEST established the WISER Fund to provide financial support to help junior faculty continue their research through a life-cycle event such as childbirth or adoption.

As it began to implement various programs to support STEM women faculty, WISEST began to explore climate issues more broadly by gathering campus data to guide its future activities with the goal of facilitating institutional system transformation. It advocated for a faculty work climate survey to assess the overall climate in STEM departments and to specifically assess the needs of the STEM women faculty. In the fall of 2003, under the aegis of the WISEST Executive Committee, a climate survey team was formed to realize this WISEST initiative. As discussion of the intent and scope of the survey ensued, the importance of understanding the perceptions of all faculty—women, men, minorities, non-minorities, STEM faculty, and non-STEM faculty—became increasingly evident. The broader UIC academic community would need to be engaged to heighten the likelihood that program and policy changes implemented based on the survey findings would benefit all faculty.

STEM departments in College of Engineering include Bioengineering, Chemical Engineering, Civil and Materials Engineering, Computer Science, Electrical and Computer Engineering, Mechanical and Industrial Engineering. STEM departments in College of Liberal Arts & Sciences include Biological Sciences, Chemistry, Earth and Environmental Sciences, Mathematics, Statistics and Computer Science and Physics.
This reframing of the climate survey was in keeping with three fundamental premises of WISEST:

- Increasing the number and improving the status of underrepresented groups (women and minorities) would require that system norms and practices be assessed and altered.
- Implementing policies and programs that would contribute to greater employment satisfaction and productivity for women faculty would result in the same for men faculty.
- Policies and programs that would enhance work satisfaction for STEM disciplines could be applied with success to non-STEM disciplines as well.

Thus, what began as a WISEST survey to assess the perspectives of women faculty in STEM was broadened to capture all Engineering and LAS faculty members’ perceptions of their workplace: what they liked, what they disliked, what was important to their daily life, what enhanced or impeded productivity. Recognizing the existing strengths and limitations of the workplace environment (climate) would help the campus develop a cohesive plan to benefit all faculty members, rather than a piecemeal approach benefiting only a few. WISEST conducted a faculty work climate survey in 2004.

Subsequently, in response to one of the findings from the 2004 faculty work climate survey that indicated the need for infant/toddler/child care, WISEST partnered with the OVPFA and with funding support from the deans of various colleges, conducted a survey of infant/toddler childcare need among the campus community in summer 2006. The campus’ need for such a service was established by the findings of the 2006 survey, resulting in the implementation of an infant/toddler/child and elder care resources and referral program later in April 2010.

b. WISEST 2006 and beyond

In August 2006 WISEST received a $3.3 million NSF ADVANCE IT grant, with the Vice Provost for Faculty Affairs (VPFA) as the PI. The program continued to be guided by an executive committee convened by the Provost and chaired by the VPFA with members including the Engineering Dean and LAS Dean and be championed by department heads and senior faculty members. It built a structure conducive to institutional transformation.

While WISEST primarily targeted the 11 STEM departments (all 6 departments in the College of Engineering and 5 STEM departments in the College of LAS), WISEST also implemented more cohesive programming to address issues at an institutional level. Five overlapping and broad strategies were designed to achieve the overall goal of advancing minority and majority women STEM faculty in these departments. They were:

Strategy 1: Warm the climate and decrease isolation of STEM women faculty.
Strategy 2: Pilot initiatives to attract and recruit minority women faculty.
Strategy 3: Transform STEM departments to foster diversity and women’s leadership.
Strategy 4: Promote STEM women’s scholarship and teaching.
Strategy 5: Improve the ability to track & report the gender equity in STEM.
These strategies were deliberately broad, allowing WISEST to plan individual programs within a larger framework and to encompass a variety of activities, from the extremely specific (expand the WISEST website) to the more general (expand accountability). Although the initiatives were tailored to address the conditions of STEM women faculty, they were designed so that lessons learned would be applicable to the entire campus. The WISEST commitment is to achieve institutional transformation while increasing the participation and success of STEM women faculty at UIC.

In the next section (Section II), we will outline the WISEST structure and show how it contributed to its success. In Section III, we will describe the WISEST programs that were implemented to achieve its goals through its strategies. In Section IV, we will provide an assessment of the WISEST impact in the UIC community. Appendix A provides a chart summarizing the WISEST activities and outcomes under each of its strategies. Finally, in Section V, we will describe the WISEST impact to the other institutions of the ADVANCE community through dissemination of its products which had contributed to its success. We will also describe how WISEST will continue to further its commitment beyond the NSF ADVANCE grant.
II. WISEST ORGANIZATIONAL STRUCTURE

The WISEST organizational structure contained features that ensured institutional accountability and warranted institutional commitment to the WISEST mission. These features provided a framework that enabled WISEST to advance its programs and policies successfully. WISEST was led and championed by players who assumed the role of three groups of change agents corresponding to the three key elements of the Architecture of Inclusion framework developed by Susan Sturm (2006) identified as essentials for institutional transformation: namely organizational catalysts, institutional intermediaries and institutional citizenship. Also, these WISEST change agents were able to lead the changes in part by virtue of the leadership role they took in UIC. During the five years when WISEST was funded by the NSF ADVANCE grant, WISEST leadership changed hands as new individuals came to these leadership roles at UIC, ensuring continuation of campus leadership for WISEST.

Figure I.1. WISEST Organizational Structure

Figure I.1 illustrates the organization structure of the WISEST Program and shows how the WISEST change agents are mapped to the Sturm’s elements of institutional transformation. Individuals who have served in these various roles during the grant have been listed in the cover pages of this report.

a. Organizational Catalysts

At the core of the WISEST structure is its Executive Committee which corresponds to the first Sturm element: Organizational Catalysts. The WISEST Executive Committee is convened by the Provost and chaired by the Vice Provost for Faculty Affairs (VPFA), who is also the Principal Investigator (PI) of NSF ADVANCE grant. Executive Committee members include four co-PIs (the Deans of Engineering and Liberal Arts and Sciences and two senior STEM faculty members), the Director of the CRWG, the WISEST Director, and the WISEST Lead Faculty-Facilitator. The Executive Committee guided strategic planning and steered the WISEST initiatives based on information provided by the WISEST Faculty-Facilitators and the findings from evaluation activities.

It is worth noting that the WISEST leadership at the campus level was defined by the roles and not

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by the individuals. During the years of the ADVANCE grant, the PI as well as all of the co-PIs changed as new individuals came into these leadership roles. The PI, for example, was the individual who served as the VPFA. As a new person assumed the role of the VPFA in the fall of 2007, she also took on the role as the PI for WISEST. The same was true for the Provost and the two deans. The continuous active participation of campus leadership in WISEST ensured the institutional commitment to the WISEST mission.

This feature in the WISEST structure is particularly significant in the adoption of new work-life friendly policies to improve faculty work climate. One example is the implementation of the Modified Duties Policy in January 2009 which states that, “Upon request, tenured and tenure-track faculty members at the Assistant, Associate, and Full Professor rank, who have a new child (or children) under the age of 6 in the home shall be granted a period of modified teaching duties without a reduction in effort or salary”.

Analysis of the results of the 2004 Faculty Work Climate Survey and the 2006 WISEST faculty interviews showed that the tenure-track assistant professors raced against the clock to build up their scholarship to establish tenure eligibility. Welcoming a new child into their family either through birth or adoption during the probationary period could cause them tremendous stress. The solution proposed was to allow faculty who became a new parent to modify her or his responsibilities for one semester away from teaching towards other duties, including research and service. Such a policy created a resource demand as the department of that faculty member had to identify another instructor to take over the teaching responsibility.

The WISEST structure facilitated its adoption. As indicated above, the WISEST Executive Committee included as members the Provost, the VPFA and two deans. The policy was drafted with the support of the Provost and the draft was shared with the WISEST Executive Committee. When the VPFA introduced the draft policy to the Deans’ Council, the Deans of LAS and Engineering voiced support for the policy and encouraged support from their fellow deans. Through the discussion with the Provost and the deans, the VPFA grasped a good understanding of the extent to which the colleges would be willing to accept this “unfunded mandate”. Equipped with this knowledge, she was able to work with the Faculty Work Climate Survey Taskforce on the specificity of the policy. The final draft of the Modified Duties Policy therefore enjoyed ready approval when it was recommended by the Taskforce to the Provost.

b. Institutional Intermediaries

Corresponding the Sturm’s second element, the Institutional Intermediaries, were the NSF, the External Evaluators and the External Advisors; three units at the top of the WISEST organization chart as illustrated above in Figure 1. With NSF ADVANCE funding WISEST was obliged to demonstrate to NSF the programs and policies it initiated to achieve its goal to increase the number, participation and leadership status of women in academic science and engineering through institutional transformation at UIC. Within the grant period, WISEST hosted two NSF visits (an end-of-year-one visit in 2007 and a mid-grant visit in 2009) during which the NSF team reviewed the WISEST activities and met with the Chancellor and the Provost to obtain reaffirmation of continued campus commitment to the WISEST mission.

Two additional components within the WISEST structure held WISEST accountable to achieving its mission. These are the External Advisory Committee and the External Evaluators. The External Advisory Committee is a group of experts in the study of women and gender, especially in the areas of sciences and engineering. They provided WISEST with an unbiased, outside
expert perspective on its progress and future direction. During its annual visits to UIC, the External Advisory Committee members worked both as advisors, guiding the initiatives of the WISEST program, as well as advocates, ensuring that the program had enough institutional support to implement those initiatives. In short, the committee worked both as a “watch dog” and a “change agent” for WISEST.

As stated above, WISEST identified its initiatives mainly through its evaluative findings. These findings resulted from ongoing quantitative and qualitative needs assessment and program/policy evaluations carried out by the WISEST Internal Evaluation Team. They were shared with the WISEST External Evaluators who were assessment experts with extensive evaluation experience with a number of other ADVANCE programs. Based on the analysis of findings from the WISEST Internal Evaluation Team, the External Evaluators wrote an annual report which was attached to the WISEST annual year-end-report submitted to NSF every year during the grant period. The External Evaluators therefore provided advice to WISEST as well as held it accountable for implementing programs/policies that were responsive to needs and effective to address concerns identified through its evaluative findings.

c. Institutional Citizenship

Finally, corresponding to Sturm’s third element, the Institutional Citizenship, were the STEM Heads, WISEST Faculty-Facilitators and the STEM faculty; units listed at the bottom of the WISEST organizational chart in Figure 1 above. At the faculty level, the WISEST leadership consisted of STEM Heads and WISEST Faculty-Facilitators at the 11 STEM departments served by WISEST. Like the participation in WISEST by campus leaders, individuals came into the WISEST structure when they assumed the role of department head or faculty-facilitator.

*STEM Heads* play a key leadership role by setting the tone in transforming departmental climate and improving the work climate for not only women and minority faculty, but for all faculty in their departments. One significant WISEST program is the provision of startup funding support up to $90,000 for a new woman faculty recruited into one of the 11 WISEST-supported STEM departments. During the grant period, WISEST provided startup support to 15 new STEM women faculty. In order for a STEM department to be eligible for the startup support, the Head of that department had to submit an annual report to the WISEST Executive Committee at the start of each academic year. The annual report had to include an action plan to improve departmental climate for the coming academic year and a report of climate-improving activities implemented in the department the previous academic year. Through this linkage and reporting, the WISEST Executive committee became aware of actions taken by the Heads and the Heads remained engaged with the WISEST mission to increase the number, participation and leadership status of women faculty in their departments.

Each of the STEM Heads was supported in her or his WISEST involvement by the WISEST Faculty-Facilitator in the respective department. The WISEST Faculty-Facilitator Model began in 2003 prior to UIC receiving the ADVANCE support from NSF. In this model, each of the STEM departments was provided funding to support a WISEST Faculty-Facilitator. Faculty-Facilitators were nominated by their respective Heads and their appointment was approved by the WISEST Executive Committee. In general, they were research-active tenured faculty members. They served as mentors for STEM women faculty, advocates of the WISEST mission in their departments, developers of some of the WISEST products, as well as the primary linkage between the STEM faculty and the WISEST campus leadership.
Selected by the STEM heads, the WISEST Faculty-Facilitators were given a platform in departmental meetings to share with the faculty the WISEST mission and disseminate the availability of its programs/policies. They also met monthly during the academic year as a group and a Lead Faculty-Facilitator was selected by the group. Together they had initiated a number of WISEST programs including the SUCCEED search training, the Postdoc Institute and the WISEST Assistant Professors Initiatives (WAPI). Through these programs they provided support to the WISEST mission on faculty recruitment and retention as well as climate transformation. In addition, the Lead Faculty-Facilitator participated as a member in the Executive Committee meetings. Through this participation the Lead Faculty-Facilitator was able to convey faculty concerns to campus leaders, thus enabling any concerns to be addressed promptly.

As an example, in the fall of 2008, the Faculty-Facilitators learned that some junior STEM women faculty were frustrated about a lack of funding to support professional needs including purchase of some lab supplies and funding their graduate students to travel to conference. Such concerns were conveyed to the WISEST Executive Committee. Within 3 weeks, the WISEST Executive Committee completed the process of seeking and reviewing the requests from faculty and providing the needed funding to some faculty through the WISER funds. Though the amount of support to each of the recipients was small, faculty members welcomed the fact that their concerns were being recognized, acknowledged and addressed promptly. Such a timely response to faculty concerns went a long way to improve faculty work climate. The WISEST Faculty-Facilitators contributed significantly to the success of the WISEST program.

d. WISEST Leadership Defined by the Roles

Through the duration of the grant, UIC had 3 different Provosts, 2 VPFA, 2 Engineering Deans and 3 LAS Deans. Different individuals assumed the role of the WISEST Faculty-Facilitator and STEM Heads. However, the WISEST Executive Committee was always led by the sitting Provost, VPFA, and the Deans. Its mission had always been championed by the sitting Heads and Faculty-Facilitators. This sustained campus commitment to WISEST contributed greatly to its success.
III. STATUS AND OUTCOMES OF PROPOSED STRATEGIES

As stated in the previous sections, the goal of WISEST was to increase the number, participation, and leadership status of women – majority and minority – in academic science and engineering through institutional transformation at UIC and five strategies that had been used to achieve this goal are:

- Strategy 1: Warm the climate and decrease isolation of STEM women faculty.
- Strategy 2: Pilot initiatives to attract and recruit minority women faculty.
- Strategy 3: Transform STEM departments to foster diversity and women’s leadership.
- Strategy 4: Promote STEM women’s scholarship and teaching.
- Strategy 5: Improve the ability to track and report on gender equity in STEM.

In this section, we will describe these strategies and illustrate what WISEST had done to achieve its goals through these strategies.

a. Strategy 1: Warm the climate and decrease isolation of STEM women faculty

Attaining a critical mass of stellar women in STEM disciplines is a key first step to warming the climate and decreasing isolation of STEM women faculty. Low numbers of women in a department would likely result in a lack of camaraderie/mentoring for a STEM woman. Similar to STEM departments nationally, UIC STEM departments had a small number of women faculty at the start of the grant.1

To increase the number of STEM women, WISEST provided start-up support for new STEM women hires. In addition, WISEST initiated a number of programs to increase the awareness of unconscious gender bias which would create obstacles to hiring stellar women faculty. These programs included the SUCCEED (Supporting the UIC’s Commitment to a Community of Excellence, Equity and Diversity) faculty search training, town hall meetings with vignette presentations and follow-up discussions, the “First-Lecture” for incoming engineering students and leadership seminars on gender schema and unconscious gender bias.

Work-life friendly policies and programs helped warm the climate for all faculty (STEM and non-STEM). WISEST helped implementation of a number of new campus work-life friendly policies including the Automatic Tenure Hold and the Modified Duties Policies. It also initiated work-life friendly programs including an Infant/Toddler/Child and Elder Care Resources and Referral program and the Women in Science and Engineering Research (WISER) fund for faculty help faculty get their career back on track after a period of intensive care-giving.

To expand mentoring and networking opportunities to STEM women, WISEST organized leadership seminars and networking luncheons. It also supported visiting scholars in each of the STEM departments. In addition, WISEST provided resources for the addition of lactation rooms in several buildings on campus.

To change the culture of the STEM departments, WISEST provided training to STEM Heads and required them to provide yearly department climate-improvement action plans. Furthermore, WISEST funded 11 STEM Faculty-Facilitators who became the voice of WISEST

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1 In 2005-06, except the Department of Biological Science (which had 10 women faculty), the number of women in the 11 STEM departments targeted by WISEST ranged from 0 to 4.
in their respective departments. In addition to providing support for fellow faculty, the WISEST Faculty-Facilitators had contributed significantly to the development of various WISEST initiatives including the SUCCEED training and WISEST Assistant Professor Initiative (WAPI).

b. Strategy 2: Pilot initiatives to attract and recruit minority women faculty.

WISEST piloted several initiatives to recruit and retain minority women faculty. In addition to providing start-up support for new STEM women hires, WISEST established the Postdoctoral Research Associates for Academic Diversity (PRAAD) program, the Postdoctoral Institute for Career Development and Diversity (PICDAD), and the WISEST Assistant Professor Initiative (WAPI).

c. Strategy 3: Transform STEM departments to foster diversity and women’s leadership.

Initiatives listed above under strategy 1 also aimed at fostering diversity and women’s leadership in the STEM disciplines.

d. Strategy 4: Promote STEM women’s scholarship and teaching.

To promote STEM women’s scholarship and teaching, WISEST contributed to the implementation of a number of new work-life friendly policies and programs as well as organized a number of networking and mentoring programs including those indicated above under strategy 1. The WISER fund program also contributed to women’s scholarship by providing research support to STEM women.

e. Strategy 5: Improve the ability to track and report on gender equity in STEM.

WISEST built a comprehensive STEM database to track and report gender equity in the 11 STEM departments in UIC. In addition, it supported a salary equity study, initiated a faculty exit interview program and conducted two faculty work climate surveys (one prior to receiving NSF funding and one in the final year of the grant). It also built its website to facilitate dissemination of information.

These 5 WISEST strategies were intentionally inter-related, overlapping and reinforcing. Hence, as described above, a WISEST product/program often served to promote more than one strategy. In what follows we will describe in more details the programs/products initiated by WISEST during the grant years (2006-2012) under the five strategies. Table III.1 maps programs/products to strategies.
Table III.1. Mapping Major WISEST Programs/Products to WISEST Strategies

<table>
<thead>
<tr>
<th>WISEST Programs/Products</th>
<th>1 Warm climate and decrease isolation</th>
<th>2 Attract and recruit minority STEM women faculty</th>
<th>3 Transform Dept. to foster diversity and women leadership</th>
<th>4 Promote STEM women's scholarsh &amp; teaching</th>
<th>5 Improve ability to track and report STEM gender equity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 WISEST Start-up Support</td>
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<td>2 Work life Friendly Faculty.</td>
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<td>Policies</td>
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<td>3 WISEST Faculty-Facilitators</td>
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<td>Model</td>
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<td>4 WISEST SUCCEED training</td>
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<td>5 WISEST PRADD program</td>
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<td>6 WISEST PICDAD Institute</td>
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<td>8 WISER funds</td>
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<td>9 WAPI</td>
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<td>12 ENGR First Lecture</td>
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<td>13 Infant/ Elder Care R&amp;R</td>
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<td>19 WISEST Exit interviews</td>
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f. WISEST Major Products/Programs

1. **WISEST Start-up Support**
   (http://www.uic.edu/depts/oaa/wisest/startup_awards.html)

   Social science research shows the importance of decreasing the isolation and marginalization of women to retain STEM women in academic careers. A key first step to decrease isolation would be to increase the number of STEM women. Towards this goal, WISEST provided start-up funding for new hires. At the start of the grant, WISEST aimed to provide start-up funding of up to $90,000 for each for 11 STEM women faculty hires, each in one of the STEM

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departments. However, with the support of the Deans of Engineering and Liberal Arts and Sciences, WISEST was able to support the hire of a total of 15 STEM assistant professors with the available resources, 4 more than its original target. During the grant period, there was also a shift of strategy of support. Instead of supporting one STEM woman faculty hire in each of the 11 departments, multiple faculty were supported within 4 STEM departments with the aim of increasing the number of women and creating a critical mass of female presence in these departments. Appendix B provides additional information about the WISEST start-up support effort.

2. New Work-Life Friendly Faculty Policies

UIC conducted a faculty work climate survey in 2004, prior to receiving NSF ADVANCE funding. This survey was conducted by the UIC Center for Research on Women and Gender and the Survey Research Laboratory. It was one of WISEST’s first major undertakings and the first climate survey conducted at UIC in 10 years.

At the beginning of the first year of the NSF ADVANCE grant (August 2006 to July 2007), a Faculty Work Climate Survey Taskforce was appointed by the Provost to identify areas for policy recommendations based on the climate survey findings. The task force was chaired by the Vice Chancellor for Research, with members including the WISEST Executive Committee members, the Associate Chancellor for Human Resources of the Office of Access and Equity, the Associate Dean for Student and Diversity Affairs of the College of Dentistry, the Head of the Department of Sociology, and the Director of Administrative Services at the Office of the Vice Chancellor for Research. Through the duration of the grant, this taskforce made a number of recommendations for program and policy implementations which had been approved by the Provost. Specifically, WISEST contributed to the implementation of a number of new work-life friendly policies that benefited all faculty at UIC. They included the Automatic Tenure Hold Policy implemented in August 2008, the Modified Duties Policy implemented in January 2009 and the revised Partner Accommodation Policy implemented in March 2011.


Results from the 2004 climate survey and the STEM women faculty interviews conducted by WISEST in 2007 revealed that women assistant professors might choose not to request a tenure rollback in the event of a child birth or adoption of a new child due to fear of being stigmatized and being viewed as not being serious in their research career. These findings were reviewed at the WISEST Strategic Planning Retreat in the summer of 2008. WISEST, the OVPFA, and the Faculty Work Climate Survey Taskforce worked together to develop an automatic tenure hold policy where “a one-year tenure hold will be automatic for an assistant professor in the tenure probationary period who becomes the parent of a child by birth or adoption. This applies to both men and women, and includes same-sex domestic partnerships that are recognized by the University. The tenure hold will become automatic via the completion of the Tenure Hold Request Form by the assistant professor.” This policy became effective in August 2008.

**Modified Duties Policy** ([http://www.uic.edu/depts/oaa/Docs/501-Modified%20Teaching%20Duties_MAAAPP_Revd_Aug%202009.pdf](http://www.uic.edu/depts/oaa/Docs/501-Modified%20Teaching%20Duties_MAAAPP_Revd_Aug%202009.pdf))

To further improve the faculty work climate, UIC enacted a modified teaching duties policy for tenure system faculty in January of 2009. Again, WISEST worked closely with OVPFA and the Faculty Work Climate Survey Task force on the implementation of this policy, which "enables
the primary caregiver (or co-equal primary caregivers) of a new child to spend more time with the child in the first year the child is home. … Upon request, tenured and tenure-track faculty members at the Assistant, Associate, and Full Professor rank, who have a new child (or children) under the age of 6 in the home shall be granted a period of modified teaching duties without a reduction in effort or salary.” This policy became effective in January 2009.

**Partner Accommodation Policy**
(https://www.uic.edu/depts/oaa/Docs/Partner_Accommodation_Program_Policy_June_2012.pdf)

In March 2011, during the fifth year of the grant, with the recommendation of the Faculty Work Climate Survey Taskforce, the Provost approved the revision of the partner accommodation policy to explicitly state that this policy would apply to support the partner who would be hired in the same department as the faculty member.³

**3. WISEST Faculty-Facilitator Model**
(https://www.uic.edu/depts/oaa/wisest/facilitators.html)

The WISEST Faculty-Facilitator Model was implemented in 2003 prior to obtaining NSF funding and it became an important element of the WISEST program funded by the NSF ADVANCE grant. WISEST appointed a tenured research-active faculty member as a Faculty-Facilitator in each of the 11 STEM departments at the recommendation of the STEM Heads. With the support of the STEM Heads and WISEST, each of the Faculty-Facilitators worked as a liaison between the faculty of her or his department and WISEST. On the one hand, the Faculty-Facilitator would communicate to the faculty the WISEST mission to increase the number, participation and leadership status of STEM women through institutional transformation. On the other hand, the Faculty-Facilitator would work to understand the faculty concerns and convey them to WISEST to initiate programs/products to improve faculty work climate. The 11 WISEST Faculty-Facilitators also worked as a group meeting monthly. They elected a Lead Faculty-Facilitator to organize and manage the various activities of the Faculty-Facilitators and to represent the group in the WISEST Executive committee.

Throughout the grant period, the Faculty-Facilitators made significant contributions to a number of WISEST initiatives including the SUCCEED faculty search training, Postdoctoral Research Associates for Academic Diversity initiative and the Postdoctoral Institute, Leadership seminars, and Visiting Scholars.

**4. WISEST SUCCEED Training**
(https://www.uic.edu/depts/oaa/wisest/faculty_search_committee.html)

Increasing awareness of unconscious gender bias is vital to removing barriers to recruiting stellar female faculty. WISEST worked to increase this awareness through development of a

³ As partner accommodation became an increasingly important issue to retain faculty members and to improve faculty work climate, the Vice Provost for Faculty Affairs (who was also the PI of the WISEST grant) began working with other universities in the region on another initiative to address this concern. In the fall of 2007, together with the University of Chicago, the Northwestern University, the Argonne National Laboratory and the Fermi Laboratory, UIC founded the GCHERC (Greater Chicago Higher Education Recruitment Consortium), which was later renamed GCMHERC adding Midwest to its name to reflect the location of its expanding membership. By the fall of 2012, GCMHERC had 25 member institutions. Among services provided by GCMHERC was job search engine listing current job opportunities offered by member institutions. Additional information about GCMHERC is available at www.gccmherc.org.
seminar and a toolkit for faculty search committees. The UIC’s SUCCEED workshop presentation and toolkit (http://www.uic.edu/depts/oaawiest/docs/search_toolkit_v9-1.pdf) were first drafted by a WISEST co-PI and a WISEST Faculty-Facilitator in 2006 and was officially introduced to the STEM departments during the September 2007 WISEST town hall. Since then, the SUCCEED training presentation had been revised and improved and its delivery to search committees had been expanded beyond the STEM departments to non-STEM departments. It had become mandatory training for all search committees in the Colleges of Engineering and LAS since 2009.

In 2010, the Colleges of Engineering and LAS began to implement SUCCEED training for their college promotion and tenure committees. In the fall 2011, the Vice Provost for Faculty Affairs started to implement the training for the campus promotion and tenure committee. It marked the beginning of institutionalizing the WISEST contribution to remove a barrier to retaining stellar female faculty across all disciplines at the university. Appendix C lists the SUCCEED trainings conducted from 2005 - 2012.

5. WISEST Postdoc Program
(http://www.uic.edu/depts/oaawiest/postdoctoral_research_associates.html)

In the fall of 2006, WISEST began to plan for its postdoc program. The two-year (2007-2009) Postdoctoral Research Associates for Academic Diversity (PRAAD) program aimed to increase the number of underrepresented minority women entering academic STEM fields in tenure-track positions. This program was developed with assistance from the National Postdoctoral Association, who was given a contract to provide the specific deliverables during the first year of the grant to aid the development of the program.

After the program was developed, a search for applicants was launched in November 2006 to recruit 5 underrepresented minority women with a doctoral degree in STEM to be the WISEST postdoctoral research associates. In addition to proactively inviting potential candidates to apply for the postdoc positions, a wide variety of advertising venues suggested by the NPA and AGEP were used to proactively recruit women for the program.

A two-part application process was used to select candidates. Part I of the application process involved review of initial applications on a rolling basis by the WISEST Executive Committee and WISEST Faculty-Facilitators. In Part II of the application process, each candidate identified a research advisor at UIC, worked with that individual to develop a research proposal, and submitted to WISEST a research project collaboratively designed by the candidate and the potential advisor. Out of 28 candidates, 5 were elected to participate in the WISEST PRAAD program that started in August of 2007. Of them, three were in the biological sciences, one in chemical engineering and one in earth and environmental sciences.

Thus, this program had a number of distinguishing features. In addition to the proactive hiring approach and development of a collaboratively designed research project based on the research interest of the postdocs prior to the arrival of them to UIC (as described above), the WISEST postdocs were mentored by a cadre of senior scientists and engineers and provided
the opportunity to attend a series of mentoring and skill-building workshops organized as the WISEST Postdoctoral Institute during their stay at UIC (as described below).  

6. WISEST Postdoc Institute
(http://www.uic.edu/depts/oaa/wisest/docs/UIC_WISEST_Postdoctoral_Institute_Plan.pdf)

As described above, the WISEST The Postdoctoral Institute for Career Development and Academic Diversity (Postdoctoral Institute) aimed at preparing the WISEST postdoctoral research associates to continue their academic/research after completion of the program. It provided a series of seminars (Appendix D) covering a range of career-enhancing topics (such as developing a teaching philosophy, writing grant proposals, and negotiating your first faculty position) and skill building areas (including time management and work-life balance). This structured training was not usually provided by traditional postdoc programs and was an enhancement that was included to better prepare the WISEST postdocs for a career as an academic professional. Each seminar attendee received a packet containing an Individual Career Development Plan (ICDP) template, a Life Planning template, and the guide, “Making the Right Moves: A Practical Guide to Scientific Management for Post Docs and New Faculty”.

Trainings were conducted by UIC faculty, experts in specific topics, and scientists from Argonne National Laboratory. In addition to the five WISEST PRAAD postdocs, other STEM postdocs were invited to all of the monthly postdoc institute sessions. The Institute therefore served to build a postdoctoral community and to facilitate networking between the postdocs and faculty presenters.

7. STEM Database

Each year during the grant, data was gathered in order to track information on women faculty to improve the ability to track and report on gender equity in STEM. Data was gathered from various UIC offices including the Office of the Vice Provost for Faculty Affairs, the Office of Access and Equity, the Office of Institutional Research, and Office of the Vice Chancellor for Research to complete data tables for the NSF annual reports. Each of the STEM departments was also contacted to collect data specific to search committees, and start-up packages for tenure and tenure track faculty.

Through this process, the WISEST Internal Evaluation Team created a centralized database for the 11 STEM departments on hiring, promotion, departure, demographics, and salaries of their faculty. This database would provide a reliable source to track and report gender equity in these STEM units.

8. Women in Science and Engineering Research (WISER) Funds
(http://www.uic.edu/depts/oaa/wisest/wiser_fund.html)

The WISER Fund was created to help STEM tenure system faculty to get their careers back on track after a period of intense care giving such as in the event of the birth of a child or the arrival

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of a child through adoption. It is open to both STEM women and men. At the beginning of the second year of the grant, the goal of the fund was expanded to support research for STEM women assistant professors. Appendix E provides a list of the WISER fund recipients during the grant period (2006-2012).

9. **WISEST Assistant Professor Initiative (WAPI)**

The WISEST Assistant Professors Initiative (WAPI) is another program initiated of the WISEST Faculty-Facilitators to provide support and mentoring to junior STEM faculty. To some extent, it was an adaptation of the WISEST Postdoctoral Institute for Career Development and Diversity (PICDAD). It began in the fall of 2010 with a need assessment conducted among STEM women assistant professors conducted by the WISEST Lead Faculty-Facilitator. In accordance to the needs expressed by the STEM women, the WAPI initiative was launched with its first seminar on work-life balance offered in November 2010, followed by a workshop on “Building the Research Enterprise” offered in February of 2011. This initiative had been continued since then in response to the needs of STEM women assistant professors and, where appropriate, the WAPI workshops were opened to both women and men assistant professors.

10. **STEM Heads Training**

The results from WISEST interviews with women faculty supported other research findings that Heads held a vital role to improve departmental climate and change its culture, setting the tone and expectations for equitable treatment within their departments. Annually, UIC Office of the Vice Provost for Faculty Affairs offered a series of workshops for department heads to cover topics on supporting a high-quality faculty, creating and maintaining a healthy campus climate, and conflict resolution in addition to budgeting and human resources management. WISEST added to this effort by supporting STEM heads to attend training workshops provided by other institutions including the University of Washington Leadership Excellence for Academic Diversity (LEAD) training, Iowa State’s National Conference, and the University of Wisconsin at Madison Department Heads Climate Training.

To facilitate heads to mentor assistant professors, WISEST also provided them a set of faculty development tools including a checklist on career development support for pre-tenured faculty. The checklist covered many aspects such as helping junior faculty connect to a new community, creating a welcoming department climate, encouraging workload balance, ensuring access to information, as well as providing information on teaching, the mentor’s role, starting a lab, publications, and getting funded.

11. **STEM Departmental Action Plans**

To provide them support to become agents for climate improvement, WISEST engaged STEM heads to become its partners for change. At the beginning of the grant, the WISEST PI and co-PI met with all heads providing them information about the ADVANCE grant, including the project narrative, working budget, Memorandum of Understanding, contact numbers, and data on the status of women faculty in STEM at UIC. Each of the heads was invited to submit a departmental action plan indicating its goals to increase STEM women and to warm the climate in the department with an accompanying action plan to achieve those goals. Submission of an
action plan from a department was required to be eligible for receiving start-up support for STEM women hires from WISEST.

Subsequent to the establishment of the initial action plan in the fall of 2006, heads were required to provide an annual report at the beginning of each of the subsequent academic year outlining the progress made towards achieving the goals established the previous year and revising goals for the coming year with an accompanying action plan to achieve those goals. In general, departmental action plans should establish goals and accompanying action plans in the following areas:

- review of the faculty handbook and present information to all faculty on the services and policies.
- commitment by the head to attend heads’ workshop.
- creation and implementation of an action plan for mentoring new women faculty.
- development of a plan for communicating the department’s Year 3 goal achievements to faculty at departmental level and obtaining faculty participation in establishing Year 4 action goals.
- development of women faculty for administrative leadership roles, and nomination of women faculty for awards/prizes.
- recruitment of under-represented minority women faculty.
- working with Faculty-Facilitators to promote WISEST commitment.

12. Engineering “First-Lecture”

As described by an article that appeared in the Chronicle of Higher Education, there had been increasing classroom incivility in institutions of higher education. The situation was more acute for instructors who were assistant professors especially for female faculty in thus far male dominant disciplines such as in chemical and mechanical engineering.

During the beginning of the WISEST grant, the Faculty-Facilitators brought to the attention of the WISEST Executive Committee occurrence of disrespectful behavior in the classroom in some engineering courses from some male students to female students and/or towards the female instructor. To address this issue raised by some STEM assistant professors, the College of Engineering, with support from WISEST, launched in fall 2009 a new program, named “the First Lecture.” The First Lecture” was a presentation delivered to students on the first day of classes by a senior faculty member in order to help set the tone for a positive learning environment built on mutual respect and inclusion. This presentation was also given on the first day of classes during 2010 and 2011.

The First Lecture highlighted the different elements for creating a positive classroom environment: students respecting students, professors respecting students, and students respecting professors. The lecture emphasized the importance of ethical and professional behavior by engineering students in the diverse classroom as a way to prepare them to successful engineering in the workplace where professional behavior was expected. It was also a way to increase students’ awareness of unconscious gender bias.

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5 Peter Schmidt, “Chief Targets of Student Incivility Are Female and Young Professors”, May 4, 2010, the Chronicle of Higher Education.
13. **Infant/Toddler/Child and Elder Care Resources and Referral (R&R) Program**

UIC has an on campus child care facility that is available only for children who are toilet trained. In 2005, with the assistance of WISEST, the Office of the Vice Provost for Faculty Affairs conducted a faculty/staff survey on the need of a campus infant/toddler care facility. The results demonstrated a need for on campus infant/toddler care.

During the academic 2007-2008, WISEST participated in a taskforce appointed by the Provost to study the feasibility of establishing an infant/toddler care center on campus. A price tag of over $4 million for such a facility rendered the proposal not financially feasible at that time. The Faculty Work Climate Survey Taskforce then started to explore alternatives to meet this faculty need. A proposal for an infant/toddler/child and elder care R&R program was recommended to the Provost. A pilot program was launched by the OVPFA in April 2010. The program continued after its pilot year. WISEST continued to provide assistance with the publicity and promotion of the program to the faculty.

14. **WISEST Town Hall**

(\text{http://www.uic.edu/depts/oaa/wisest/town_halls.html})

WISEST organized a series of 4 town halls for faculty sponsored by the Provost. Each town hall included a vignette and a follow-up discussion on the topic involved in the vignette presentation. The topic of the first town hall held in November 2007 was about unconscious gender bias in faculty search with a 3-part vignette acting out situations where unconscious gender bias led to barriers for stellar women candidates to be considered for academic positions. This town hall meeting provided the springboard for the launch of the WISEST SUCCEED training for search committee as described earlier in this report.

The second (held in the fall of 2008), the third (held in spring 2010) and the fourth town hall (held in spring 2011) followed the similar format. They covered respectively the topics of unconscious racial/ethnicity bias in faculty search; unconscious gender bias in classroom interaction among students and between students and their instructor; and how gender schemas and unconscious gender bias may influence the interaction between faculty, between head and faculty and between staff and faculty. Each of them was sponsored by the Provost and was well attended by faculty members representing all colleges in the university.

15. **WISEST Leadership Seminar and Visiting Scholars Program**

(\text{http://www.uic.edu/depts/oaa/wisest/leadership_seminars.html}; \text{http://www.uic.edu/depts/oaa/wisest/visiting_scholars.html})

Through the duration of the NSF ADVANCE grant, WISEST held numerous events aiming to reduce the isolation of STEM women faculty and to warm the faculty work climate. Events included leadership seminars, networking events for STEM women faculty, and visiting scholar receptions. Leadership seminars featured STEM women leaders and covered topics including leadership development and research on possible gender bias on student teacher evaluations in addition to scientific seminars in the speakers’ area of research. Networking events included a biannual luncheon for all STEM women faculty. Visiting Scholar events were introduced to increase campus exposure to women scientists who might serve as role models. WISEST also funded visits by distinguished STEM women scholars each year. These faculty members presented their research over a two-day period interacting with faculty, both undergraduate and...
graduate students and post-doctoral researchers in the STEM disciplines. Appendix F includes a list of all these WISEST events.

16. **WISEST Website**  
([http://www.uic.edu/depts/oaa/wisest/](http://www.uic.edu/depts/oaa/wisest/))

The WISEST website was launched in the first year of the grant and was listed with NSF ADVANCE to ensure widespread dissemination of the WISEST initiatives, serving as a campus and national vehicle to broadcast the WISEST program, its mission and achievements. It contained information about the WISEST program including a program description, a printable brochure and its NSF quarterly and annual reports.

Since its inception the WISEST website had been updated regularly. In 2007, for example, a News & Events section was added to the website where upcoming events were advertised, including the Visiting Scholar public seminars and leadership seminars. In 2009, it added a link to the Infant/Toddler/Child and Elder Care program featured in the website of the OVPFA. The WISEST website enjoyed regular visits. In the fall of 2011, it was institutionalized and became a permanent part of the OVPFA homepage.

17. **WISEST Lactation Room Support**

The WISEST Faculty-Facilitators have played an important role in advocating for the resolution to provide lactation rooms by the University of Illinois at Chicago Senate. The resolution (Appendix G) states that UIC would establish lactation rooms for nursing mothers in accordance with the Illinois Nursing mothers in the workplace Act, (820 ILCS 260/1 et seq. 2001 ILL. ALS 68; 2001 Ill. Laws 68; 2001 ILL. P.A. 68; 2001 SB 542: Section 15). As a first step in this effort, they verified the physically locations of the existing lactation rooms and helped update them in a campus-wide website [http://www.uic.edu/uic/studentlife/studentservices/lactationroom.shtml](http://www.uic.edu/uic/studentlife/studentservices/lactationroom.shtml). In addition, they had developed lactation rooms in several UIC buildings, with partial funding from WISEST, the Deans of Engineering and Liberal Arts and Sciences and STEM Heads. Partly in response to their advocacy effort, two additional lactation spaces have been included in the planned renovation of the building that houses the science and engineering labs.

18. **WISEST Salary Equity Study**  
([http://www.uic.edu/depts/oaa/wisest/salary_equity_study.html](http://www.uic.edu/depts/oaa/wisest/salary_equity_study.html))

One of the most sensitive and potentially divisive issues in the academy is salary compensation. In 2008, WISEST engaged the UIC Office of Institutional Research (OIR) to conduct a salary equity study. In addition to collaborating with OIR in data collection and analysis for this study, WISEST engaged an expert external advisor in this project. Data related to productivity measures and other variables needed for the salary equity study were collected for the tenure system faculty in the College of Engineering and LAS for academic year 2007-2008. Basic variable categories included in the analysis were academic rank, tenure status, academic department, administrative assignment, ethnicity, gender, age, years since terminal degree, years in rank, productivity measures, principal investigator/Co-PI status, grant dollars generated, publications and teaching load.
Analysis of the data collected showed no significant gender difference in the average salary using all faculty. When analyzed for each academic rank, the data showed there were significant differences between average salaries for male and female faculty at the assistant professor rank (with women having a lower average salary) and at the associate professor rank (with women having a higher average salary) and no significant salary difference at the professorial rank.

Multiple regression techniques were then used to evaluate factors that might contribute to pay differentials. Several multiple regression models were fitted to predict salary in different faculty ranks and for the population as a whole. Model diagnostics and factor analysis among productivity variables were also included.

The $R^2$ for the models were 0.9918 ($n = 31$) for the assistant professor model; 0.87 ($n = 57$) for the associate professor model and 0.575 ($n = 94$) for the full professor models. A precaution should be noted before drawing any inferences from the “by-rank” models. Typically in multiple regression analysis, the minimum sample size should be five times the number of predictors. More than twenty variables were being evaluated in the model in the study. This meant the minimally acceptable sample size should exceed 100. However, none of the three ranks independently contained sufficient cases in the STEM disciplines for this modeling purpose. The results by rank could therefore only be suggestive. Hence no follow-up actions were initiated after the results of the study were presented to the Executive committee in March 2010.

19. WISEST Exit Interview

To help UIC systematically learn from its losses and to improve the university work environment, WISEST spearheaded in the establishment of a standard method for conducting exit interviews/surveys across UIC. The Exit Survey Committee, under the direction of the Office of Vice Provost of Faculty Affairs, reviewed several survey models before selecting and launching one in May of 2008, during the second year of the grant. This survey was launched as part of the online exit process. It served as a model for continued faculty exit interviews. During the academic year 2008-2009, a total of 53 faculty responded to the survey. The initial findings in were:

- When asked about the three primary reasons for leaving UIC, 60% of the respondents ($n = 53$) indicated retirement. The other reasons include quality of leadership (25%), pay dissatisfaction (23%), lack of recognition at work (17%) and work climate (13%).
- On average, faculty considered leaving for 1.5 ± 1.3 years before they actually terminated their employment at UIC.
- 46% of the respondents cited a single precipitating event that made them leave UIC; however, only 14% ($n = 7$) felt that they were clearly encouraged to leave UIC and another 14% ($n = 7$) felt that they were possibly encouraged to leave.
- Of the total 14 faculty who were encouraged to leave, 43% said that a counteroffer was not matched, three received a formal or informal request to leave, two were given subtle hints and the final three did not describe how they were encouraged to leave.

These findings will be further analyzed to provide information to help campus in its effort to retain faculty.
Next Section

Additional information about numerous programs/products implemented by WISEST during its NSF funding period (2006-2012) described in this section is available on the websites stated above. In the next section, we will evaluate the impact of these programs/products and assess how much, if any, of the WISEST goal and its strategies were achieved through them.
IV. WISEST IMPACT: TO UIC COMMUNITY

In the previous section we described the numerous programs and policies that were implemented as a part of the WISEST effort. In this section we will evaluate the impact of the overall WISEST effort in UIC in achieving its goal through the five strategies as described in the previous sections of this report. In the next section, we will discuss WISEST effort to share with other institutions its effective products/programs for their potential adaption in other institutions to increase the representation and advancement of STEM women.

We used data collected from multiple sources using both qualitative and quantitative methodologies during the five years of the grant for the evaluation of the WISEST impact to the UIC community. In what follows, we will first describe the WISEST evaluation teams and the quantitative and qualitative data collected. We will then evaluate the WISEST impact first in the 11 STEM departments it targeted and then in the entire institution as WISEST aims at institutional transformation.

We will show that data collected by WISEST provided evidence that the start-up funding for women hires from the NSF ADVANCE grant and the WISEST programs to increase awareness of unconscious gender bias (including the SUCCEED search training, the town hall vignettes and discussions and leadership seminars) resulted not only in the hire of larger number of STEM women but also in excellence in STEM women faculty especially among the new hires. Those data also indicated that through the grant period, the STEM women became more satisfied with their current position and career progression in UIC. Additionally, STEM women faculty were also successful in being promoted in part due to the supports provided to them. At the campus level, these supports included the implementation of new work-life friendly faculty policies and programs as well as the implementation of SUCCEED training for the university level promotion and tenure committee. At the college level (Engineering and LAS), they included mandatory SUCCEED training first for all faculty search committees and subsequently for the college promotion and tenure committees as well as the initiation of programs such as the First Lecture. At the departmental level, they included actions to improve climate taken by their Heads as well as mentoring and networking programs initiated by their colleagues including the WISEST Facilitators. These efforts in total had resulted in an improved work climate not only for STEM women but also for all faculty (women and men) in both STEM and non-STEM disciplines.

a. WISEST Evaluation Teams

The WISEST evaluation effort included an Internal Evaluation Team, an External Evaluation Team, an External Advisory Committee and the UIC Office of Institutional Research.

The WISEST Internal Evaluation Team was chaired by a co-PI who later became the PI as she began to assume the role of the Vice Provost for Faculty Affairs in the fall of 2007. Its members included the monitoring and evaluation coordinator, a data coordinator and graduate research assistants. The WISEST Director also contributed to this effort. A detailed evaluation plan and timeline using a combination of quantitative and qualitative methods were developed during the first year of the grant (2006-2007) to monitor and assess progress toward the specific strategies and the overall goal. This plan was executed during the duration of the grant to evaluate the WISEST impact.
Collection and analysis of the quantitative and qualitative data were conducted by the WISEST Internal Evaluation Team with the support of the WISEST External Evaluation Team that consisted of two external evaluators subcontracted by WISEST. Annually, the NSF tables were compiled by the Internal Evaluation Team and reviewed by the External Evaluation Team. In addition, the Internal Evaluation Team collected and analyzed the qualitative data (including data obtained from interviews, focus group meetings and surveys) with inputs and suggestions from the External Evaluation Team. The WISEST External Evaluation Team also produced an external evaluation report annually which was submitted to NSF together with the NSF tables and reports on qualitative data analysis. A copy of the 2012 External Evaluator Report is included in Appendix H.

WISEST’s evaluation work was also guided by an External Advisory Committee (EAC), which consisted of seven scholars known nationally for their work on advancing women faculty. Members of this team visited UIC four times during the grant period. At each of the visits, the EAC met with the entire WISEST community demanding accountability from WISEST to act to achieve its mission and providing WISEST with guidance and advice for implementation of its programs/products. The Committee also met with the campus leadership including the Provost and the Chancellor, reiterating the WISEST achievements and emphasizing the need for their continued support for the WISEST mission. Hence, the EAC acted both as a “watch dog” and as a “cheer leader” for WISEST and was a significant component for the WISEST program.

In 2008, WISEST engaged the UIC Office of Institutional Research (OIR) to conduct a salary equity study. In addition to collaborating with the OIR in data collection and analysis for the study, WISEST engaged an external expert consultant in this project.

b. WISEST Data Collection Efforts: Quantitative and Qualitative data

The WISEST Internal Evaluation Team collected both quantitative and qualitative data to assess the impact of WISEST.

Quantitative data included a series of 12 tables on STEM faculty data which included the NSF required outcomes as well as additional outcomes that were specific to UIC STEM population http://www.uic.edu/depts/oaawisest/quantitative_education.html. These data were obtained from individual STEM departments and other offices in UIC including the Office of Access and Equity (OAE), the Office of the Vice Chancellor for Research (OVCR), the Office of Institutional Research (OIR) and the Office of the Vice Provost for Faculty Affairs (OVPFA) tracking recruitment, promotion, retention of STEM women, and resources allocated to them. These tables had been updated annually during the grant and tracked these outcomes starting in the baseline year (2005) to the end of the no-cost extension year (2012).

WISEST Qualitative data included those collected through interviews, focus groups and surveys with various WISEST stakeholder groups. http://www.uic.edu/depts/oaawisest/qualitative_education.html. Altogether 9 sets of interviews, focus groups and surveys were conducted with the WISEST stakeholders during the duration of the grant. At the end of the Year 1 of the grant (2006-07), the WISEST Internal Evaluation Team conducted individual interviews separately with all 11 STEM Heads of Department and STEM women faculty, as well as conducted focus groups with the WISEST facilitators. Another set of follow-up individual interviews were conducted with the STEM women faculty at the end of

1 These tables also became a part of the annual reports produced by the WISEST External Evaluation Team.
Year 3 (2008-09). A follow-up survey was conducted with the Facilitators in the fall of 2009. In addition, individual interviews were conducted with all STEM women faculty who were provided WISEST start-up support in 2011. Finally, the Postdoctoral Research Associate Initiative was assessed using both interviews and surveys. Specifically, participants of the initiative (postdocs) were interviewed individually both at the beginning (fall of 2007) and the end of the program (spring 2009). A survey of their mentors was also conducted at the end of the program.

c. 2011 Faculty Work Climate Survey

In the fall of 2011, WISEST conducted a faculty work climate survey with the tenure system faculty in the Colleges of Engineering and Liberal Arts and Sciences. This survey was a follow-up to a similar faculty work climate survey conducted with the same target group in 2004, prior to the beginning of the NSF ADVANCE grant. Both the 2004 and 2011 surveys used the same instrument\(^2\) and both were administered to the same population, namely the tenure system faculty in the Colleges of Engineering and LAS. The 2004 survey was administered in a paper format while the 2011 survey was administered online. The response rates were high; 67% in the 2004 survey and 58% in the 2011 survey respectively.\(^3\)

A large amount of information was collected by these two surveys. A copy of the 2004 report is available in [http://www.uic.edu/depts/oaa/faculty/Faculty_Work_Climate_Survey.pdf](http://www.uic.edu/depts/oaa/faculty/Faculty_Work_Climate_Survey.pdf). A preliminary report of the 2011 survey is in Appendix J. Preliminary analysis of the change in the faculty work climate from 2004 and 2011 included comparing the data from three questions aiming at measuring the faculty satisfaction collected by these surveys.\(^4\) These questions were:

- How satisfied or dissatisfied are you, in general, with your position at UIC? (1: very dissatisfied; 2: moderately dissatisfied; 3: slightly dissatisfied; 4: slightly satisfied; 5: moderately satisfied; 6: very satisfied)
- How satisfied or dissatisfied are you, in general, with the way your career has progressed at UIC? (1: very dissatisfied; 2: moderately dissatisfied; 3: slightly dissatisfied; 4: slightly satisfied; 5: moderately satisfied; 6: very satisfied)
- How seriously have you considered leaving UIC? (1: very seriously; 2: moderately seriously; 3: slightly seriously; and 4: never considered leaving)

The data collected from each of these questions were summarized by the descriptive statistics of three variables: S\(_{POSITION}\) (satisfaction with position), S\(_{CAREER}\) (satisfaction with career progression) and STAY (consideration to stay) respectively. The mean values of these variables provide a measure, on the average, of faculty satisfaction about their position, faculty satisfaction about their career progression and their desire to stay at UIC, respectively. Given the framing of the questions with the choice options, as described above, a higher the mean value for S\(_{POSITION}\) represented a greater faculty satisfaction with their position in UIC. Similarly, a higher mean value for S\(_{CAREER}\) represented a greater faculty satisfaction with

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\(^2\) A few questions were added to the 2011 survey in relation to the policies and programs implemented at UIC since the 2004 survey.


\(^4\) Additional analysis will be conducted to further examine the change in faculty work climate between 2004 and 2011.
their career progression at UIC. Also, a higher mean value for STAY reflected that faculty were more seriously considered staying. Later in the section, we will show the results of our analysis of the data reflecting the change in faculty satisfaction.

d. Impact of WISEST: Increase in Representation (Number and as a Percentage of the Faculty) of STEM Women

From 2005 to 2012, STEM women increased both in number (from 34 to 48) and as a percentage of all STEM faculty (13.8% to 20.8%).

As we described in the previous section, the WISEST effort began prior to UIC receiving the NSF ADVANCE IT grant. We therefore captured the changes from the fall of 2005, one year prior to the NSF grant (2006-2012), to 2012 (including a no-cost extension year) in our assessment of changes in STEM women, as we had done in the series of 12 data tables submitted annually to NSF throughout the grant. It should be noted that the changes had been sustained throughout the years. Hence, including the data in 2005-2006 would provide a more complete picture without generating any distortion.

With recruitment effort including startup support provided by WISEST and the concerted effort to increase the awareness of unconscious gender bias through town hall discussions and SUCCEED faculty search committee trainings conducted by the WISEST Facilitators, the number and percent of women faculty in the 11 STEM departments targeted by WISEST had been significantly increased.

During this period, 63 new tenure system faculty were hired. They joined UIC from the fall of 2006 to the fall of 2011. Of the 63 new hires, 24 (38.1% of new hires) were women, which proportionally was close to three times as large as the percent of women in STEM (13.8%) in 2005. This brought about an increase not just in the number but the percentage of STEM women. From 2005-2006 to 2011-2012, STEM women tenure system faculty increased from 34 (13.8%) to 48 (20.8%) as shown in Figure IV.1.

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5 UIC data on STEM women representation compared well with the national data. In AY 2007-2008, 14.9% of faculty in corresponding academic science and engineering departments in the top 100 research universities were women (Nelson and Brammer, 2010). In the same year, 15.4% of the STEM faculty at UIC were women, as illustrated in Figure IV.1.

6 15 of the 24 new women faculty received start-up support from WISEST.

7 It should be noted in Figure IV.1 and also in Figures IV.2a to IV.2c, Year X indicates the period from August 16, Year X to August 15, Year X+1. For example, 2005 represents the period from August 16, 2005 to August 15, 2006; and so on.
When disaggregated by rank, most of the new hires were assistant professors. Specifically, of the total 63 new tenure system faculty members, 55 (87.3%), 4 (6.3%) and 4 (6.3%) were assistant, associate and full professors respectively. Of the 24 new STEM women, all were assistant professors.

Comparing 2005-2006 to 2011-2012, the number of STEM women assistant and associate professors increased from 13 to 21 and 10 to 16 respectively and remained at 11 for full professors. While the increase in the STEM assistant professors was due to new hires, the increase in STEM women at the associate professor level was entirely due to their success in obtaining promotion and tenure. In terms of STEM women as a percentage of the total faculty, STEM assistant and associate professors, had increased from 31.0% to 48.8% and from 14.1% to 24.6% respectively from 2005-2006 to 2011-2012. STEM full professors, however, had remained approximately the same, ranging between 8.2% and 10.2%. Figures IV.2a, IV.2b and IV.2c respectively present these data for three faculty ranks.

When disaggregated by college, similar increases were observed in number of women as a percentage of the faculty in both the College of Engineering and College of LAS. The number and percent of STEM women increased from 13 (11.9%) to 20 (19.6%) in Engineering from 2005 to 2012 and from 21(15.2%) to 28 (21.7%) in LAS. In both colleges, the increases occurred mostly at the assistant and associate professor levels. Women as a percent of STEM assistant professors increased from 32.0% to 50.0% in Engineering and from 29.4% to 48.0% in LAS. That for associate professors increased from 8.3% to 25.0% in Engineering and from 20.0% to 24.2% in LAS. On the other hand, women as a percent of full professors changed only slightly from 4.2% to 5.8% in Engineering and from 10.5% to 11.3% in LAS.

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8 As indicated previously, all the women new hires were assistant professors.
Relative to other universities, there was evidence that UIC had done much better at the assistant and associate professor levels and not as well at the full professor level in terms of the increase in STEM women faculty as a percentage of the total faculty. Table IV.1 compares Gibbons (2010)\(^9\) data for women as a percentage of STEM faculty for engineering units in 2010-2011 to UIC data on Engineering in the same year. It shows that UIC has a much higher percentage of women in STEM disciplines at the assistant and associate professor ranks compared to Gibbon’s numbers, but fewer at the full professor rank. It is important to note that Gibbons percentages are based on the average of 21 different disciplines rather than the six disciplines represented at UIC.

<table>
<thead>
<tr>
<th>Table IV.1: UIC Engineering Women Faculty by Rank Compared to a National Sample</th>
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</thead>
<tbody>
<tr>
<td>-------------------</td>
</tr>
<tr>
<td>Assistant Professors</td>
</tr>
<tr>
<td>Associate Professors</td>
</tr>
<tr>
<td>Full Professors</td>
</tr>
</tbody>
</table>


\(^{10}\) URM groups include those who are Native American, African American and Latina/o.

\(^{11}\) By comparison, in the top 100 research universities, URM STEM faculty as a percentage of STEM faculty was 6.0%; URM women as a percentage of STEM women was 14.5%; and URM women as a percentage of STEM faculty was 0.9% in AY 2007. (Nelson and Brammer, 2010).
f. Impact of WISEST: Postdoctoral Research Associates for Academic Diversity Program (PRAAD) for Advancement of URM STEM women in Academic Science and Engineering

The WISEST PRAAD is an exemplary pilot program for increase in representation and advancement of URM STEM women. It has a number of features distinct from traditional postdoctoral programs, which had contributed to the success of the programs for its participants. All 5 postdoctoral research associates remained associated with research universities. Three of them became tenure-track assistant professors.

In addition to increasing the recruitment of URM women faculty in STEM, WISEST implemented its Postdoctoral Research Associates for Academic Diversity program (PRAAD) which, as described in the previous section, was a unique 2-year comprehensive career-building fellowship program that prepared aspiring STEM women from URM groups to achieve faculty positions. The unique features of this postdoctoral program included: pro-active recruitment strategies, development of a collaborative research project by each of the postdoctoral associates (in an area of her interest) with an identified research faculty member, a multi-dimensional mentoring program with a cadre of mentors, and the Postdoctoral Institute for Career Development and Academic Diversity for training and skill-building.

WISEST had kept in touch with all of its 5 PRAAD research associates and learned that all five of them remained at research universities. Three of them became tenure-track assistant professors at research universities. The other two were also at research universities at different capacity, one was an adjunct associate research professor and the other served in a laboratory in charge of chemical safety.

During the individual interviews conducted by the WISEST Internal Evaluation Team with them at the end of the program (2009), the WISEST Postdoctoral Associates indicated that they had a positive experience with the program and with UIC.12 Also, qualitative data collected from those interviews and the survey to their mentors also administered at the end of the program (2009) provided evidence that the unique features of the WISEST PRAAD, included the followings, had contributed to its success:

- Goal setting by the postdoc associates at the beginning of the program
- Upfront discussion of expectations for both the postdocs and the mentors
- Institutional support from the Provost, the Deans and Heads of Department
- Development of a research proposal and the identification of a research mentor by the postdoctoral associates prior to the beginning of the program
- Mentoring tailored to individual needs and the series of seminars (the WISEST Postdoctoral Institute)
- Group mentoring model with a cadre of mentors who contributed to different developmental aspects of postdoctoral associates. All but one of the postdoctoral associates indicated that having learned a lot and having developed a good relationship with their mentors.

12 Three of the 5 WISEST Postdoctoral Associates stayed at UIC, with one being recruited aggressively by UIC to become a tenure-track assistant professor. Also, the Research Associates were invited to meet with other URM women STEM candidates during candidates’ visits to UIC. They contributed to success of those recruitment efforts resulting in the hire of other URM STEM women in UIC during the grant.
g. Impact of WISEST: Promotion and Retention of STEM Women

STEM women thrived at UIC (20.8% of the STEM women hired as assistant professors between 2006 and 2002 received the prestigious NSF CAREER award). They stayed (91% retention rate during the period 2005-2012) and were tenured and promoted (at 86% rate during the period 2005-2012).

STEM women at UIC had been increasingly recognized for their stellar scholarship. For example, 9 (47.4%) out of the 19 STEM faculty members who had received the prestigious NSF CAREER awards were women. This percentage compared favorably against the proportion of STEM faculty members who were women during the grant period. Specifically, women as a percentage of STEM faculty ranged from 13.8% (in 2005-2006) to 20.8% (in 2011-2006); women as a percentage of STEM assistant professors ranged from 31.0% (in 2005-2006) to 48.8% (in 2011-2012). Moreover, of 24 new STEM women hired from 2005-2012 as assistant professors, 5 (20.8%) of them had received this prestigious award. The above data suggested that the UIC search effort (including the SUCCEED search training and the town hall meetings) might have contributed not only in hiring more women but also in hiring stellar women.

These stellar women had also been retained at a high rate. As described earlier, there were 34 STEM women in 2005 and 24 new female assistant professors hired during the grant period (2006-2012). Of all these 58 STEM women, only 5 (9%) resigned from UIC. The retention rate for all STEM women was 91%. Of the 58 STEM women, 37 were either assistant professors in the fall of 2006 or hired as assistant professors between 2006 and 2012. Of these assistant professors, 34 (89.2%) stayed at UIC. By comparison, using data of assistant professors hired in science and engineering in 14 universities since 1990, Kaminski and Geisler (2012) showed that less than half of STEM women were retained at their universities within 11 years of being hired.

STEM women were also tenured and promoted at a high rate. There were 13 female assistant professors in 2005, an additional 24 new women assistant professors were hired during the grant period. Of these total 37 STEM women who began their careers as assistant professors at UIC, 12 were promoted and tenured as associate professors during the period of the grant, 21 remained at the tenure-track as assistant professors and 4 left UIC (2 prior to having to come up for tenure and promotion). Hence 12 out of 14 (86%) assistant professors coming up for tenure and promotion were tenured as an associate professor. Counting the two who left prior

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13 By comparison, of the 31 new STEM men hired as assistant professors during the same period, 4 (12.9%) of them had received this prestigious award.

14 Also, the retention rate for STEM women assistant professors was 89.2%. By comparison, tracking a total of 2,966 faculty from 14 universities hired in science and engineering since 1990, Kaminski D. and C Geisler (2012) showed that “the chance that any given faculty member (women or men) will be retained over time is less than 50%”.

15 Two women assistant professors during her probationary period in UIC. Adding them as those who would not be promoted and tenured at UIC, the rate of promotion and tenure for women assistant professors was 75.0%. By comparison, Kaminski and Geisler (2012) data showed that 64.2% of STEM women assistant professors in 14 universities were promoted and tenured at the same institution.

16 Kaminski and Geisler (2012) indicated that the survival rate for STEM men was similar to that of STEM women.
to the end of the probationary period, 12 our of 16 (75.0%) of STEM women assistant professors were promoted to associate professor at UIC. By comparison, Kaminski and Geisler showed 64.2% of STEM women were promoted to associate professor at the same institution.\(^\text{17}\)

There were 10 female associate professors in 2005-2006; of these, 5 (50%) were promoted to full professors during the grant period. Of the 12 associate professors who were promoted from assistant professors during this period, 1 was further promoted to the rank of full professor.

**h. Impact of WISEST: Warming Work Climate of STEM Women**

Evidence from qualitative data collected by WISEST [including from the interviews with STEM women faculty (in 2007 and 2009), interviews with Department Heads (2007), focus groups with Facilitators (2007) and follow-up surveys with Facilitators (2009) as well as interviews with recipients of the WISEST start-up supports (2011)] provided evidence that STEM women felt that their heads had become more supportive. Many found that their departmental climate had been more welcoming.

While the number and percent of the STEM women had increased as described above, the number of STEM women remained small within individual departments. In 8 of the 11 STEM departments, there were 5 or less women faculty in 2011-2012. The largest number of STEM women was in Biological Sciences with 11 STEM women. Two other STEM departments had more than 5 women faculty; they were the Department of Mathematics, Statistics, and Computer Science (7 women) and the Department of Electrical and Computer Science (6 women). The rest (8) of the STEM departments had women numbered at 5 or below: 5 in Computer Science, 4 each in Mechanical and Industrial Engineering and Physics, 3 each in Chemistry and Earth and Environmental Science, 2 each Chemical Engineering and Civil and Materials Engineering, and only 1 woman in the Bioengineering. Hence within each department, women could still remain “lonely” and might become isolated.

Several WISEST efforts aimed to address this issue and they were described in the previous section. There was evidence from our qualitative data indicating some success. First, being a campus program led by the Provost, the Vice Provost for Academic Affairs and the Dean of LAS and Engineering, with a stated commitment to increase the number and representation of STEM women, the WISEST program signaled to the STEM women the campus commitment to improve faculty work climate for all faculty in general and STEM women faculty in particular.

At the next level of administration department STEM Heads took a leadership role in improving the climate for women in their departments. Each year, in response to the request from the WISEST Executive Committee, they set a plan with goals and accompanying action plans to improve departmental climate and they provided a follow-up report at the beginning of the subsequent year outlining the outcome of their plans. There were also a cadre of 11 STEM facilitators who were senior research-active faculty members working individually and as a group mentoring STEM women. These facilitators also served as advocates for STEM women, dedicated to bringing their concerns to the attention not just to the STEM heads but also to that of their deans, the Vice Provost for Faculty Affairs and the Provost.

More importantly, through various WISEST efforts including leadership seminars and STEM women luncheons, these STEM women broke through departmental silos and networked with

\(^{17}\) Kaminski and Geisler (2012) indicated that the promotion rate for STEM men was similar to that of STEM women.
each other across departments and in many cases collaborated with each other on research. Instead of a few of them in each department, they became a collective cohort among the STEM units; 48 strong in numbers by 2011-2012. This was especially the case among the 21 Assistant professors who joined UIC in 2005-2006 or later and hence had experience at UIC mostly since the beginning of the NSF ADVANCE grant.

WISEST qualitative data showed evidence of warming work climate for the STEM women. With respect to the role of the Heads, when asked whether or not they observed a change in the role of the head, half of the STEM women faculty who participated in both the 2007 and 2009 interviews expressed in 2009 that they felt there had been a change. One said, “I guess compared to the previous head, the new head is very supportive of the work that I do and my role in the department.” Another indicated that, “When I was pregnant with my second child… it didn’t make sense for me to teach for four weeks. At that time the head was responsive. I didn’t have to ask, the issue was just taken care of.” Another respondent mentioned that she thought that WISEST had made the current head of her department “more sensitive to women’s issues.” Several others felt the involvement of their department heads in WISEST had positively contributed to the change in departmental culture.

With respect to the role of the Facilitators, while less than half of the STEM women interviewed in 2009 felt the facilitators had helped improve the climate in their department, those who felt that facilitators had helped cited that following specific ways in which the facilitators had improved the climate in their department:

- The facilitator had worked with the head on climate related issues
- Facilitator sub-committees were formed (i.e. post doc committee) with tangible goals
- The facilitator had supported the search committee trainings

Other respondents mentioned that the facilitator had been helpful in promoting increased interaction among women in the departments.

With respect to the departmental climate, while in the earlier interviews conducted by WISEST (2007), many of the STEM women observed isolation, fragmentation and lack of interaction among faculty as key impediments to establishing a collegial environment in their departments, in the follow-up interviews again conducted by WISEST (2009), many of them indicated that they perceived a warming climate in their departments. Many of them felt that there had been some or a great deal of changes in the climate in their department since the start of WISEST. Almost all of them cited the addition of female faculty members to their department as contributing to positive culture change.

Similar sentiments were expressed by the STEM women who had received WISEST start-up funding when they were interviewed in 2011. When asked if WISEST had influenced their department’s climate and culture in any way, they all indicated that WISEST had a positive effect on their department’s culture. Specifically, some participants in the interviews noticed that the number of STEM women faculty had increased, and the majority of faculty in the departments was “woman-friendly”. In addition, some participants remarked on the increased awareness of gender bias in general and during the hiring process. Participants also noted that having a supportive department influenced positively the department climate and culture. As one woman noted, “There are so many advantages [with WISEST]. The fact that it brings female faculty together, and it brings together people in non-aggressive way so you are comfortable talking about the issues. I’m not sure I would have been so comfortable talking about [issues] with male faculty. The socializing and the informal mentoring with other female faculty was fantastic. I just came back from a conference and met other colleagues who said it is not all the case like that in their departments.”
i. Impact of WISEST: Increase in Faculty Satisfaction

Faculty in the Colleges of Engineering and Liberal Arts and Sciences in general became more satisfied with their position and career progression at UIC in 2011 when compared to 2004. Both the percentage of faculty “very satisfied” with their positions in UIC and the percentage of faculty “very satisfied” with their career progression increased by more than 10 percentage points. These were unexpected results, as the campus had experienced budgetary cut from the state and faculty had gone through three years of salary freeze and one year with mandatory furlough days during this period. More importantly, the increase in faculty satisfaction was gone beyond STEM to non-STEM disciplines and beyond women to men. This is important for WISEST as its goal was to increase STEM women participation and advancement through institutional transformation. Advancing STEM women also benefited all faculty in the entire institution.

As described earlier, 3 questions designed to measure faculty satisfaction were included in both the 2004 and 2011 faculty work climate surveys. These measures included: S_POSITION (satisfaction with current position), S_CAREER (satisfaction with career progression) and STAY (desire to stay at UIC). An increase in the mean value of these variables from 2004 to 2012 would indicate an increase in faculty satisfaction.

Figure IV.3 illustrated the change in the mean value of these variables from 2004 to 2011. It showed that, for all faculty, the mean value of three satisfaction measures increased. The mean value of S_POSITION increased from 4.12 ± 1.55 (in 2004) to 4.55 ± 1.42 (in 2011); that of S_CAREER also increased from 4.36 ± 1.45 (in 2004) to 4.68 ± 1.39 (in 2011); while that for STAY remained relative similar, 2.17 ± 1.03 (in 2004) compared to 2.19 ± 1.04 (in 2011).

More importantly, for both the S_POSITION and S_CAREER variables, comparing the percent of participants in each of the 6 categories in the 2011 survey to those in the 2004 survey, there was a reduction of percent in almost all of the 5 lower satisfaction categories, contributing to a huge increase in the “very satisfied” categories. Figure IV.4a and IV.4b below demonstrate these changes.

As illustrated in Figure IV.4a, for S_POSITION, the percentages of faculty who were less than “very satisfied” (almost in all of the 5 lower satisfaction categories) decreased from 2004 to 2012. On the other
hand the percentage of faculty who were “very satisfied” their positions went up by more than 10 percentage points, from 15.8% to 26.0%.

Similar increase in faculty satisfaction was reflected in the S_CAREER measure, as illustrated in Figure IV.4b. The percentages of faculty who were less than “very satisfied” (the 5 lower satisfaction categories) for this satisfaction measure decreased from 2004 to 2011. The percent of faculty who were “very satisfied” with their career progression increased from 18.7% to 31.7%, a 13-percentage points increase.

Overall, the survey data showed that faculty became more satisfied with their current position (79.1% being “satisfied” in 2011 compared to 69.5% in 2004) and with their career progression (81.9% in 2011 compared to 76.9% in 2004).

j. Impact of WISEST: Increase in Satisfaction of STEM Women

From 2004 to 2011, STEM women who were very satisfied with “her position” at UIC almost doubled (from 16.7% to 27.8%) and who were very satisfied with “her career progression” at UIC more than tripled (from 12.5% to 38.9%), according to the 2004 and 2011 Faculty Work Climate Surveys.

A comparison of the 2004 and 2011 survey results show that for STEM women, the mean values of the two satisfaction measures increased from 2004 to 2011, as illustrated in Figure IV.5 below. Specially, SPOSITION mean value increased from 4.38 ± 1.24 (in 2004) to 4.64 ± 1.46 (in 2011) and S_CAREER mean value increased from 4.29 ± 1.40 (in 2004) to 4.72 ± 1.49 indicating that STEM women became more satisfied in their position and career progression in UIC. However, it should be noted that the STAY mean value for STEM women went down from 2.65 ± 1.13 (in 2004) to 2.33 ± 1.12 (in 2011) during the same period.
More importantly, the percent of STEM women who were “very satisfied” with her position at UIC about doubled (from 16.7% to 27.8%) and those who were “very satisfied” with her career progression at UIC more than tripled (from 12.5% to 38.9%), as illustrated in Figure IV.6 below.

k. Impact of WISEST: Beyond STEM and Beyond Women

As stated as the WISEST mission, our goal was to increase the number, participation, and leadership status of minority and majority women in academic science and engineering through institutional transformation. However, as described in the last section, many of the WISEST programs/products benefited all faculty- women and men, STEM and non-STEM resulting in a warming of the climate for the entire institution.

The new policies including the Automatic Tenure Rollback implemented in August 2008 and the Modified Teaching Duties implemented in January 2009 applied to the entire campus for both female and male faculty who became a new parent. The new programs including the Infant/Toddler/Child and Elder Care Referral and Resources were also available to the entire campus. WISEST had also been committed at the start to include both women and men as advocates for the its mission. WISEST heads and Facilitators included both women and men. In fact, many of the male faculty members had been some of the fiercest advocates for the STEM mission. There was evidence that both STEM and non-STEM and both women and men faculty had become more satisfied as reflected in the change in the mean value of the satisfaction measures illustrated in Table IV.2.
Table IV.2 : Mean Value of Satisfaction Measures  
2004 v 2001, by Gender and by Discipline

<table>
<thead>
<tr>
<th></th>
<th>S_POSITION</th>
<th>S_CAREER</th>
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<tbody>
<tr>
<td></td>
<td>Mean Value</td>
<td>Percent</td>
</tr>
<tr>
<td>2004</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STEM</td>
<td>4.07</td>
<td>0.50</td>
</tr>
<tr>
<td>Non-STEM</td>
<td>4.20</td>
<td>0.32</td>
</tr>
<tr>
<td>Women</td>
<td>4.24</td>
<td>0.41</td>
</tr>
<tr>
<td>Men</td>
<td>4.11</td>
<td>0.37</td>
</tr>
<tr>
<td>ALL</td>
<td>4.12</td>
<td>0.42</td>
</tr>
</tbody>
</table>

I. Impact of WISEST: Beyond STEM to Non-STEM

When comparing STEM and non-STEM groups, both groups expressed an increase in satisfaction.

The 2004 and 2011 faculty work climate survey results showed that faculty in both of these groups expressed an increase in satisfaction of their position and their career progression and the increase was greater for the STEM group. As shown in Table IV.2 above and illustrated in Figure IV.7 below, for S_POSITION, while the change in the mean value for the STEM group is from 4.07 ± 1.53 (2004) to 4.57 ± 1.40 (2011) or by 12.4%; the change in the mean value of the non-STEM group is from 4.20 ± 1.56 (2004) to 4.52 ± 1.45 (2011) or by 7.6%. It should also be noted that while the STEM faculty, when compared to non-STEM faculty, were less satisfied in their position in 2004, they became relatively more satisfied in their position in 2011.

![Figure IV.7: S_POSITION and S_CAREER 2004 v 2011; STEM v Non-STEM](image)

A similar trend was observed for the second satisfaction measure: S_CAREER. The mean value of S_CAREER for the STEM group increased from 4.22 ± 1.44 (2004) to 4.72 ± 1.30 (2011) or by 11.8% while that for the non-STEM increased from 4.54 ± 1.40 (2004) to 4.64 ± 1.47 (2011) or by 2.3%. It should also be noted that while the STEM faculty, when compared to
non-STEM, were less satisfied in their career progression in 2004, they became relatively more satisfied in their career progression in 2011.

**m. IMPACT of WISEST: Beyond Women to Men**

*When comparing women and men faculty, both groups expressed an increase in satisfaction.*

When comparing women and men, there was also evidence that both gender groups expressed an increase in satisfaction and the increase was greater for women. This was shown in Table IV.2 above and illustrated in Figure IV.8 below. The mean value of S_POSITION increased from 4.24 ± 1.41 (in 2004) to 4.65 ± 1.46 (in 2011) or by 9.6% for women and from 4.11 ± 1.57 (in 2004) to 4.49 ± 1.39 (in 2011) or by 9.1% for men; while the mean value of S_CAREER increased from 4.48 ± 1.41 (in 2004) to 4.70 ± 1.48 (in 2011) or 5.0% for women and 4.36 ± 1.43 (in 2004) to 4.67 ± 1.34 (in 2011) or 7.2% for men. It should be noted that relative to men, women remained to be more satisfied in their position and their career progression in 2011 as they were in 2004.

**Figure IV. 8: S_POSITION and S_CAREER Mean 2004 v 2011; Women v Men**

**Next Section**

With the understanding that institutional transformation is a continuous and on-going process, we will describe in the next section the beginning of the institutionalization of some of the WISEST programs/products. We will also describe how WISEST has shared what we learned with the ADVANCE community to contribute to our common goal of increasing the participation and advancement of women in academic science and engineering.
V. WISEST DISSEMINATION AND WISEST BEYOND WISEST

WISEST has developed and implemented a number of products/programs that, as described in the previous sections, have contributed to the success of its effort to increase women’s participation and advancement in academic science and engineering through institutional transformation in UIC. Some of them have unique features distinct from other products/programs that have been developed by other universities. It is important to share our programs with other institutions and clearly point out what their distinguishing features are and how they have contributed to advancing women in STEM. WISEST has and will continue to disseminate its programs through publications and presentations in national conferences and workshops. Many of these products/programs have also been institutionalized within UIC since the end of the ADVANCE grant. WISEST will continue to carry on UIC’s commitment to diversity and to support and advance STEM women through securing institutional support as well as seeking other external funding support.

a. WISEST Dissemination: Impact to the ADVANCE community

WISEST publications and presentations have been centered on several of its unique products/programs (Appendix K). They include the WISEST Organizational Structure Model, its Faculty-Facilitator Model, its SUCCEED Training Program, its Postdoctoral Program and its First-Lecture. They have features that distinguish themselves from other programs made available by other ADVANCE institutions and these features are vital to their success.

- **WISEST Organizational Structure Model.** Institutional transformation requires the devotion and passion of many change agents working cooperatively in various and complimentary roles to generate a change in the culture of an institution. One such a model for institutional transformation was suggested by Susan Sturm (2006). In her Architecture of Inclusion Framework, Storm identified three different elements (namely, organizational catalysts, institutional intermediaries and institutional citizenship), described their roles and showed how they could work together to change the culture of an institution.

  The organizational structure of WISEST mirrors that of Sturm’s architecture of inclusion framework and comprises all three of Sturm’s change agents for institutional transformation. Many of these change agents are able to play their roles as change agents primarily due to the positions they hold. These include the position of the Provost, the Vice Provost for Faculty Affairs, the Deans and the Heads. Hence, it is also important that the WISEST structure allows its key players to be represented by the positions the individuals hold rather than to the individuals themselves. During the grant period, new individuals came into these campus leadership positions. But these new individuals took on their roles within the WISEST structure and continued to guide WISEST towards its mission. The position of the VPFA, for example, was assumed by a new individual in 2007. She became the PI of the grant from 2007-2012 during her tenure as the VPFA.

  By identifying these key change agents within WISEST, we provide an organizational structure model to other institutions as they begin their effort to achieve climate change in their institutions.
• **WISEST Faculty-Facilitator Model.** A champion is needed to carry out great ideas to fruition. Effort and time commitment are required to devise ways to develop and implement these ideas to achieve outcomes and subsequently to attain goals. Other institutions have also implemented a “championship” model to advance the success of STEM women. However, while other institutions with ADVANCE grants such as the Rutgers University supported such a “championship” model at the college or institutional level, WISEST operated its “championship” model at the departmental level. The WISEST grass-root championship model turns out to be effective.

A facilitator was appointed by the department head in each of the 11 STEM departments targeted by WISEST. Moreover, the WISEST structure provided a channel of communication between the departmental facilitators and the campus leadership enabling them to obtain the needed campus support. It was hailed by eminent scholars in its external advisory committee as a “cost-effective” model which “is strong and works exceptionally well”. They pointed out that “working with heads, the facilitators weave WISEST goals into the departmental fabric and allow faculty issues to be brought to the attention of administrators for solution(s) in “real time”.

The WISEST faculty-facilitator model had a number of desirable features that contributed to its success. Other institutions should consider using this model to promote the advancement of STEM women.

  - A WISEST facilitator was charged to be a “champion” of STEM women in her or his own department and was willing to do so with the support of a modest amount of resources.
  - A WISEST facilitator and the STEM women whom she or he would “champion” knew each other as colleagues within the same department. This relationship generated certain understanding and perhaps trusts among the participants that were essential to the success of this “championship” model.
  - The 11 WISEST facilitators, one in each of the 11 STEM departments, worked individually as well as together as a group led by the WISEST Lead Facilitator who was a member of the WISEST Executive Committee. The members of the Executive Committee included the Provost, the Vice Provost for Faculty Affairs, the Vice Chancellor for Research and the Dean of Engineering and the Dean of Liberal Arts and Sciences. In the monthly meetings of the committee during the grant, the Lead Facilitator was able to understand from the campus leadership the WISEST mission and to convey to the campus leadership the needs of the STEM women. A good understanding of the WISEST mission enabled the facilitators to devise ways to achieve outcomes to meet that mission. Also, a good understanding of the need of STEM women enabled the campus leadership to implement campus policies and programs to meet these needs. Through this channel of communication, the WISEST facilitators therefore were able to carry out effectively their role as the “champions” of the STEM women.

• **WISEST SUCCEED Training Program.** It is well established in research that unconscious gender bias might be held even by individuals who “consciously refute gender stereotypes”. Research also shows that “implicit bias may be more powerful than explicitly held beliefs and values” and these biases serve as impediments to the

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recruitment of stellar women faculty simply because many individuals are not aware of these implicit bias.²

Other institutions including the University of Wisconsin have developed faculty training to increase awareness of unconscious gender bias. However, unlike efforts by other institutions, WISEST trainers were senior STEM faculty members who were scientists and engineers. Prior to delivering training, the WISEST SUCCEED trainers studied the social science literature for research results about gender schema and collected relevant faculty data in the academic science and engineering disciplines. They delivered trainings tailored for individual departmental faculty search committees. In each of the trainings for a specific STEM unit, they shared with their fellow scientists and engineers research findings about the existence of unconscious gender bias and the impediment that this existence created for hiring stellar women faculty members. Additionally, they presented their colleagues with faculty data that were specific to their discipline. Delivering this training as a fellow scientist or engineer who might also have previously been hampered by having unconscious gender bias and providing faculty data relevant to the discipline of the search committee members prove to be an effective way to increase awareness about the issue.

- WISEST Postdoctoral Program. WISEST’s innovative Postdoctoral Research Associates for Academic Diversity Program (PRAAD) has a number of features which distinguishes itself from a traditional postdoctoral program that is generally offered in STEM disciplines, as outlined in Table V.1 below.

<table>
<thead>
<tr>
<th>WISEST PRAAD Program</th>
<th>Standard Postdoctoral Program</th>
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</thead>
<tbody>
<tr>
<td>• Hired as a Cohort (5 URM postdocs)</td>
<td>• Hired individually by the Advisor</td>
</tr>
<tr>
<td>• Goal: To mentor the postdoc for an academic/faculty position</td>
<td>• Goal: To mentor the postdoc to be successful in a specific research project.</td>
</tr>
<tr>
<td>• Engaged in research of the postdoc’s choice (matched with the mentor)</td>
<td>• Engaged in the advisor’s research project</td>
</tr>
<tr>
<td>• Mentored by a cadre of mentors</td>
<td>• Research advisor serves as a mentor</td>
</tr>
<tr>
<td>• 2-year program funded jointly by the department and WISEST</td>
<td>• Variable length of program funded by the research advisor</td>
</tr>
<tr>
<td>• Series of structured career and skill building seminars</td>
<td>• No formal program</td>
</tr>
</tbody>
</table>

Our assessment findings show that these features contributed to the success of the program. It is important to share with the ADVANCE community how these specific features contribute to the success of the participants in the program. This program can serve as a model that can be adopted by other institutions to prepare STEM female postdocs for a successful career in academic science and engineering.

² Hill C., C. Cobett and A. St. Rose (2010).
• **WISEST First-Lecture.** Setting the expectation of mutual respect between faculty and students and creating a positive learning environment is important especially at the time when students begin their career at the institution. That is the goal behind the creation of the “First Lecture” for entering engineering students.

The “First-Lectures” are delivered by senior engineering faculty members to incoming freshmen and entering transfer students as they start their program in UIC. Faculty members inform students about their professional and ethical responsibilities as engineers. They ask students to increase their awareness of gender, ethnic or race-based assumptions and stereotypes embedded in the patterns of thinking of many people. They tell their students that as the classroom is a microcosm of the work place, students who build a positive working relationship with their professors set the groundwork for successful working relationships with supervisors and mentors in the real world.

As the WISEST External Advisors Committee points out in its 2011 report, [http://www.uic.edu/depts/oad/wisest/external_advisors_reports.html](http://www.uic.edu/depts/oad/wisest/external_advisors_reports.html), the WISEST First Lecture is “a low-cost effective model that should be disseminated beyond Engineering”. This classroom, climate-focused, presentation that underlines the mutual obligation of faculty and students to respect each other can be used in many departments at UIC and in other institutions.

**b. WISEST Beyond ADVANCE**

WISEST began at UIC in 2003 prior to the NSF ADVANCE grant. As described in this report, the funding support provided by NSF (2006-2012) has enabled WISEST to develop and implement a number of products and programs which have begun to generate a positive impact on the campus climate resulting in a general increase in faculty satisfaction. Since the end of the NSF ADVANCE award in July 2012, UIC continues to embrace the WISEST mission of increasing the participation and advancement of women in academic science and engineering as part of its commitment on diversity.

The WISEST Executive Committee with members including campus leaders continue to meet monthly and continues to guide the WISEST program which is now housed within the Office of the Vice Provost for Faculty Affairs. A senior faculty member is appointed as the WISEST Director, who reports to the Vice Provost for Faculty Affairs.

A number of the programs developed by WISEST during the ADVANCE grant period have also been institutionalized. They include the SUCCEED training and the Faculty-Facilitator model. The SUCCEED training to increase awareness of unconscious gender bias was now delivered for both faculty search committees and faculty promotion and tenure committees. While the Faculty-Facilitators still only exist in the 11 STEM departments and SUCCEED training is delivered primarily by senior STEM faculty who are WISEST Faculty-Facilitators, the WISEST Executive Committee is planning for expansion of these programs beyond the STEM departments. The 2011 climate survey data will also be further analyzed. Once areas of concerns are identified, the Climate Survey Taskforce will meet to discuss ways to address them and provide recommendations to the Provost for new policies and programs to be implemented to continue improve the campus climate.