

**Final Report for Period:** 08/2011 - 07/2012

**Submitted on:** 08/07/2012

**Principal Investigator:** Hansen, Vicki L.

**Award ID:** 0811089

**Organization:** U of Minnesota Duluth

**Submitted By:**

Hansen, Vicki - Principal Investigator

**Title:**

ADVANCE IT Start Award: Toward Fostering Women Faculty in STEM Fields

### Project Participants

#### Senior Personnel

**Name:** Hansen, Vicki

**Worked for more than 160 Hours:** Yes

**Contribution to Project:**

Prof. Hansen has worked on the project, generally at no cost to the project; Prof. Hansen receives no salary or benefits. Hansen was compensated for ~1 month in summer 2012. Hansen worked on the project during the entire duration of the project, mostly with no compensation from the project.

**Name:** Holst, Timothy

**Worked for more than 160 Hours:** No

**Contribution to Project:**

Timothy Holst has worked on the project, but at no cost to the project; he received no salary or benefits. Holst worked on the project Fall 2008-Spring 2010; he did not work on the project from Fall 2010-2012. The amount of time that Holst put in during that time is unknown, and he was never paid.

**Name:** Tsai, Bilin

**Worked for more than 160 Hours:** No

**Contribution to Project:**

Prof. Tsai has worked on the project, but at no cost to the project; Prof. Tsai receives no salary or benefits. Prof. Tsai was on leave Fall Semester 2008, and as such she was not working on the project during that semester. However, she returned Jan. 2009 and worked with the project through Spring 2010. She did not work on the project from Fall 2010-2012. The amount of time that Tsai put in during that time is unknown, and she was never paid.

**Name:** Petersen-Perlman, Deborah

**Worked for more than 160 Hours:** Yes

**Contribution to Project:**

Prof. Petersen-Perlman has worked on the project; she was compensated for 160 hours of work total over the time period of the award. SHE also worked on the award with no compensation of salary or benefits. She worked on the award during the entire duration of the award, from 2008-2012.

**Name:** Lang, Jeannette

**Worked for more than 160 Hours:** Yes

**Contribution to Project:**

Ms. Lang served in a program development and facilitator role for the department Heads Leadership Program (HELP) we developed at UMD as a first step toward institutional transformation. Ms. Lang worked full time on the project from ~Sept. 2011 through May 2012; she was compensated with project funds.

**Post-doc**

**Name:** Janssen, Susan

**Worked for more than 160 Hours:** Yes

**Contribution to Project:**

Dr. Janssen collected quantitative data as outlined in the original grant proposal to be collected by Dr. Sue Damme. She was compensated by project funds for her work.

**Graduate Student**

**Name:** Renne, Amy

**Worked for more than 160 Hours:** Yes

**Contribution to Project:**

Ms. Renne began working toward the interviewing of faculty that have joined SCSE in the past five years in order to understand why these faculty members came to UMD.

During summer 2009 Ms. Renne decided to terminate her involvement with the project.

**Name:** Olund, Jeanne

**Worked for more than 160 Hours:** Yes

**Contribution to Project:**

Ms. Olund has taken on the task of interviewing women faculty who are currently in UMD-SCES, and those who have left SCSE in the past ten years for reasons other than retirement. She submitted a report of her findings to the PI and Co-Is. The purpose of the report, as outlined in the original proposal is to understand the experience of women STEM faculty at UMD, and why they chose to stay, or to leave. Olund was supported with project funds.

**Undergraduate Student****Technician, Programmer****Other Participant****Research Experience for Undergraduates**

**Organizational Partners**

**Other Collaborators or Contacts**

Yes, We have established a Steering Committee at UMD.

Steering Members:

Dr. Susan Damme, CLA-UMD; Prof. Andrea Schokker, Chair of Civil Engineering, SCSE-UMD;

Prof. Jean Regal, UMD Medical School; Assoc. Vice Chancellor Jackie; Millslagle, UMD; Prof.

Prof. and Associate Dean George Trachte, UMD Pharmacology

Gerald Pepper, Inter. Administrative Position for EVCAA; assisted with HELP

EVCAA Andrea Schokker, assisted with HELP

**Activities and Findings**

**Research and Education Activities:**

We collected quantitative and qualitative data as outlined in the original proposal. The results of both data sets and their analyses helped guide us in designing an Institutional

Transformation plan. Qualitative data mostly involved oral interviews of targeted faculty groups in order to address specific questions about why faculty come to The Swenson College of Science and Engineering at UMD (SCSE-UMD), why faculty leave SCSE-UMD, and climate issues of broad concern across campus. We also explored best practices on a wide range of fronts including mentoring, leadership training/workshops, department head leadership workshops, faculty support, promotion and tenure evaluation processes. Our Steering Committee provided useful guidance, input, and evaluation. The Steering Committee has been extremely helpful in identifying issues and possible pathways to explore.

We continue conversations/partnership with colleagues at the University of Minnesota Twin Cities campus in order to explore possible collaborative efforts between the our major campuses (UMD and UM-TC) with an aim to cut down on isolation of women and minority STEM faculty and to increase networking opportunities.

A first step toward UMD institutional transformation, and the final phase of UMD's funded IT-Catalyst project, we designed and implemented a year-long all-campus department Chair/Head Leadership training program called "Head Leadership Program" or HELP, with the support of UMD's Chancellor Lendly Black. We developed this program in collaboration with the new Executive Vice Chancellor for Academic Affairs office, which should provide a permanent home for the program in the future. We got off on a bit of a rocky start given the interim EVCAA, but the program improved with the appointment of the EVCAA. We also had a major issue in terms of the Department Heads gaining trust for the HELP program given a long history of mistrust of administration across campus. Clearly any real transformation is a long way out, and it will depend on whether the new administration actually wishes to work toward institutional transformation, which is not yet clear.

The HELP proposal emerged as a primary action item from our ADVANCE IT-Catalyst data collection and analysis. HELP goals are: (1) to provide department Heads with practical tools and strategies to help them lead more effectively and communicate clearly to colleagues how decisions made beyond the department level reflect on the work of the department; and (2) to provide a community of practice for department heads across UMD so that they can support one another in instituting change and develop stronger working relationships among themselves and their departments.

Throughout the program development we included avenues for evaluation and encouraging the Department Heads to have input in future directions.

### **Findings:**

We have established that women are underrepresented in the STEM fields in SCSE-UMD, and that despite hiring of several new women faculty over the past five years, the overall numbers of women SCSE faculty have remained essentially unchanged. Our quantitative analysis allows us to establish a baseline for women SCSE faculty, and clearly establish that women are under represented, and that there has been little change over 5 years. The results to date of our quantitative data analyses indicate the climate plays a critical role in the life of UMD-SCSE women. Women SCSE faculty were less positive about working at UMD than other groups (male SCSE faculty, and non-SCES UMD faculty). Women SCSE faculty are: less satisfied with leadership, less likely to report that their work efforts were supported by their departments, more likely to feel that they were not in control of their tenure decision, more likely to say that they thought about quitting their jobs, and more likely to desire

working for a unit where they felt more appreciated. UMD-SCSE male faculty are more likely than women faculty to be: tenured earlier, hired at the professor rank, remain at UMD longer, and be in leadership positions. With no variable controlled or adjusted, median base salaries for men were higher than those for women in 2009. This difference may be due (at least in part) because men, on average, have been at UMD longer. A multivariate salary analysis in progress should clarify these differences.

The qualitative study indicate that women feel less appreciated than their male colleagues, they feel that they have little to no control or input within the college and/or within their departments, many feel isolated and lack collegial camaraderie; some feel overt harassment and discrimination. However the study results also indicate that not all departmental environments are toxic, and some departments are even supportive. Thus we remain hopeful that the climate within SCSE-UMD can be improved.

Through the HELP project it seems that the problems and issues that we discovered were problems for women in the STEM fields, are not unique to this group, providing strong motivation for changes across colleges and across campus.

We identified important aspects that should be part of any institutional transformation for SCSE-UMD, including: 1) Department Head workshops/training aimed at leadership, encouraging diversity, and nurturing an environment for transparency, and open discussion of ideas and collaboration; 2) Establish a College-level promotion and tenure review committee (this will require working with the Faculty Union) as well as University Administration); 3) Establish leadership and negotiation workshops for women and minority STEM faculty; 4) Designing a support system for women and minority STEM faculty. All of these activities require funding, personnel, and support of the administration.

### **Training and Development:**

The project PI and Co-Is gained new knowledge of management, administration, and issues of concern of/for/by women STEM faculty, better understanding of the collection and interpretation of quantitative and qualitative data with regard to human subjects, a better understanding of how organizations in general, and UMD in particular, work?, which is critical for developing/proposing plans for transformation. Dr. Susan Janssen has gained an appreciation of issues with regard to challenges for women faculty in both STEM fields, but also outside STEM fields. Ms. Jeanne Olund, graduate student, gained research experience as a result of her work on the project. Ms. Jeannette Lang gained further experience in program organization and group facilitation aimed at developing a community of practice.

### **Outreach Activities:**

We conducted Campus Cafes in which we engage UMD faculty and staff in conversations about climate issues. We hosted Prof. Barbara Baird, Cornell University, as a speaker discussing the challenges and possible pathways for women in the STEM fields. We have taken opportunities to educate through invited speaking engagements. PI Prof. Hansen was the keynote speaker for the UMD Commission on Women's 2009 Spring Luncheon, and the 2009 UMD-Graduate Degree Commencement Ceremony. On both occasions she spoke of the role of science in organizations. PI Hansen has spoken to several groups about young women in science. PI Hansen has served in an advisory role to other campuses interested in both the IT-Catalyst program, and undertaking actions aimed toward institutional transformation on their campuses.

### **Journal Publications**

**Books or Other One-time Publications**

**Web/Internet Site**

**Other Specific Products**

**Contributions**

**Contributions within Discipline:**

No such contributions to date.

**Contributions to Other Disciplines:**

No such contributions to date.

**Contributions to Human Resource Development:**

No such contributions to date. Work in progress.

**Contributions to Resources for Research and Education:**

No such contributions to date.

**Contributions Beyond Science and Engineering:**

**Conference Proceedings**

**Categories for which nothing is reported:**

Organizational Partners

Any Journal

Any Book

Any Web/Internet Site

Any Product

Contributions: To Any Beyond Science and Engineering

Any Conference