Women in Science & Engineering Leadership Institute
Annual Report
2010

Principal Investigators, *University of Wisconsin-Madison*:

Prof. Molly Carnes, Departments of Medicine and Industrial & Systems Engineering
Prof. Amy Wendt, Department of Electrical & Computer Engineering
Dr. Jennifer Sheridan, WISELI

Overview

WISELI
Women in Science & Engineering Leadership Institute
University of Wisconsin-Madison

An Overview of WISELI

The Women in Science & Engineering Leadership Institute (WISELI) is a research center at the University of Wisconsin-Madison. WISELI was formed in 2002 with funding from the National Science Foundation's ADVANCE: Institutional Transformation program. The center is currently funded with a combination of: contributions from eight UW-Madison schools, colleges, or units; grant funding from national scientific funding agencies; gift funds; and funds earned through WISELI's income-generating activities.

The long-term goal of WISELI is to have the gender of the faculty, chairs, and deans reflect the gender of the student body at UW-Madison. To accomplish these goals, WISELI is a visible, campus-wide entity, endorsed by top-level administrators, which uses UW-Madison as a "living laboratory" to study gender equity for women in science and engineering, implement solutions, and provide methods and analyses to measure indicators of success. WISELI also disseminates "best practices" in gender equity programming and measurement. Our workshops and materials are in demand by colleges and universities nationally (and even internationally).

The major initiatives that WISELI has implemented include:

Workshops & Grant Programs	Research and Evaluation Projects	Dissemination Activities
• *Searching for Excellence & Diversity* workshops for search committee chairs and members	• Exit interviews for all UW-Madison faculty departures	• WISELI Listserv
• *Enhancing Department Climate: A Chair's Role* workshops for department chairs	• *Study of Faculty Worklife at UW-Madison* faculty climate surveys	• WISELI Website
• *Retaining & Advancing Excellent Faculty through Bias Literacy* workshops for departmental faculty and staff	• Collection of gender equity indicators	• Online library of relevant literature
• Celebrating Women in Science and Engineering Grant Program	• Women Speaking Up: Gender & Discourse	• Documentary Videos
• Vilas Life Cycle Professorship Program	• In-Depth Interviews with Women Faculty & Staff	• Online bookstore (easy purchase of WISELI brochures and booklets)
• Denice D. Denton Distinguished Lecture Series	• Gendered Interactions in Labs	• *Implementing Workshops for Search Committees*
• *Running a Great Lab*: Workshops for New Principal Investigators	• Study of Academic Staff Worklife	• *Implementing Workshops for Department Chairs*
	• *Pathfinder*: An Anti-Bias Videogame	• *Breaking the Prejudice Habit Through Bias Literacy*
		• *Removing Unconscious Bias from the Awards Process*

Organizational Chart

WISELI
Women in Science & Engineering Leadership Institute
University of Wisconsin-Madison

Directors & Staff

Co-Director: Molly Carnes
Co-Director: Amy Wendt
Research & Executive Director: Jennifer Sheridan
Evaluation Director: Christine Maidl Pribbenow
Workshop Developer: Eve Fine

Administrative Partners

Chancellor Biddy Martin	Provost Paul DeLuca	Dean Martin Cadwallader, Graduate School
Dean Molly Jahn, College of Agricultural & Life Sciences	Dean Paul Peercy, College of Engineering	Dean Gary Sandefur, College of Letters & Sciences
Dean Robert Golden, School of Medicine & Public Health	Dean Jeanette Roberts, Pharmacy	Dean Daryl Buss, Veterinary Medicine
Dean Julie Underwood, School of Education	Dean Robin Douthitt, School of Human Ecology	Dean Katharyn May, School of Nursing
Vice Provost for Diversity & Climate Damon Williams	Vice Provost for Faculty & Staff Programs Steve Stern	Assoc. Dean for Physical Sciences Terry Millar, Graduate School
Assoc. Dean for Biological Sciences Donna Paulnock, Graduate School	Douglass Henderson, Graduate Engineering Research Scholars (GERS)	Jocelyn Milner, Office of Academic Planning & Analysis
Luis Piñero, Equity & Diversity Resource Center	Lynn Edlefson, Office of Child Care and Family Resources	Don Schutt, Office of Human Resource Development
Gail Coover, Wisconsin Alliance for Minority Participation	Wendy Crone, Women Faculty Mentoring Program	Lindsey Stoddard Cameron, New Faculty Services

Campus Affiliates

Women in Science and Engineering and other supporters, through WISELI Listserv

Papers and Presentations

WISELI Publications and Presentations

Papers Published:

Schmid, Sandra L.; Molly Carnes; Ursula Goodenough; Nancy Hopkins; Phoebe LeBoy; Sandra Masur; and Virginia Valian. 2010. "A Richer and More Diverse Future for Cell Biology." ASCB 50th Anniversary Essay. *Molecular Biology of the Cell*. 21(22): 3821-3822.

Ford, Cecilia. "Questioning in Meetings: Participation and Positioning." 2010. In *Why Do You Ask? The Function of Questions in Institutional Discourse* (Susan Erlich and Alice Freed, Eds.) New York, NY: Oxford University Press.

Crone, Wendy. 2010. *Survive and Thrive: A Guide for Untenured Faculty*. San Rafael, CA: Morgan & Claypool Publishers.

Fine, Eve. 2010. "Book Review: Is Biology Still Destiny? Recent Studies of Sex and Gender Differences." *Feminist Collections*. 31(3): 1-7. Madison, WI: University of Wisconsin System.

Sheridan, Jennifer; Eve Fine; Christine Maidl Pribbenow; Jo Handelsman; Molly Carnes. 2010. "Searching for Excellence & Diversity: Increasing the Hiring of Women Faculty at One Academic Medical Center." *Academic Medicine*. 85(6):999-1007.

Isaac, Carol; Griffin, L; and Molly Carnes. 2010. "A Qualitative Study of Faculty Members' Views of Women Chairs." *Journal of Women's Health*. 19(3):533-46. **PMID: 20156081.**

Carnes, Molly. 2010. "Commentary: Deconstructing Gender Difference." *Academic Medicine*. 85(4):575-577. **PMID: 20354367.**

Pribbenow, Christine Maidl; Jennifer Sheridan; Jessica Winchell; Deveny Benting; Jo Handelsman; and Molly Carnes. 2010. "The Tenure Process and Extending the Tenure Clock: The Experience of Faculty at One University." *Higher Education Policy*. 23:17-38.

Isaac, Carol; Barbara Lee; and Molly Carnes. 2009. "Interventions That Affect Gender Bias in Hiring: A Systematic Review." *Academic Medicine*. 84(10):1440-1446. **PMID: 19881440.**

Carnes, Molly; Claudia Morrissey; and Stacie E. Geller. 2008. "Women's Health and Women's Leadership in Academic Medicine: Hitting the Same Glass Ceiling?" *Journal of Women's Health*. 17(9): 1453-1462. **PMID: 18954235**. **PMCID: PMC2586600**.

Ford, Cecilia E. 2008. *Women Speaking Up: Getting and Using Turns in Workplace Meetings.* New York: Palgrave Macmillan.

Fine, Eve. 2008. "Response to Lawrence Summers' Remarks on Women in Science." In *The Blair Reader: Exploring Contemporary Issues,* 6th edition. Edited by Laurie G.

Kirszner and Stephen R. Mandel. Prentice Hall. Originally published January 2005 on WISELI's website: (http://wiseli.engr.wisc.edu/news/LawrenceSummers_Response.pdf)

Handelsman, Jo and Robert Birgeneau. September 25, 2007. "Women Advancing Science: A Few Significant Changes in the Academic System Could Stem the Loss of Talented Women, Thereby Fortifying our Scientific Leadership." *Technology Review*. http://www.technologyreview.com/blog/guest/21855/ .

Marchant, Angela; Abhik Bhattacharya; and Molly Carnes. 2007. "Can the Language of Tenure Criteria Influence Women's Academic Advancement?" *Journal of Women's Health*. 16(7): 998-1003. **PMID: 17903076**.

Sheridan, Jennifer; Eve Fine; Jessica Winchell; Christine Maidl Pribbenow; Molly Carnes; and Jo Handelsman. 2007. "Searching for Excellence & Diversity: Does Training Faculty Search Committees Improve Hiring of Women?" American Society for Engineering Education (ASEE) 2007 Conference Proceedings. http://papers.asee.org/conferences/paper-view.cfm?id=4254 . June 2007.

Sheridan, Jennifer; Christine Maidl Pribbenow; Eve Fine; Jo Handelsman; and Molly Carnes. 2007. "Climate Change at the University of Wisconsin-Madison: What Changed, and Did ADVANCE Have an Impact?" Women in Engineering Programs & Advocates Network (WEPAN) 2007 Conference Proceedings (on CD-ROM). http://dpubs.libraries.psu.edu/DPubS?service=Repository&version=1.0&verb=Disseminate&handle=psu.wepan/1200322686&view=body&content-type=pdf_1# . June 2007.

Pribbenow, Christine Maidl; Jennifer Sheridan; Molly Carnes; Eve Fine; and Jo Handelsman. "Departmental Climate: Differing Perceptions by Faculty Members and Chairs." *The Journal of Women and Minorities in Science and Engineering*. [2006 draft accepted and under revision.]

Carnes, Molly and JudyAnn Bigby. 2007. "Jennifer Fever in Academic Medicine." *Journal of Women's Health*. 16(3):299-301. **PMID: 17439375**.

Carnes, Molly and Carole Bland. 2007. "A Challenge to Academic Centers and the NIH to Prevent Unintended Gender Bias in Selection of CTSA Leaders." *Academic Medicine*. 82(2):202-206. **PMID: 17264704**.

Committee on Maximizing the Potential of Women in Academic Science and Engineering. 2006. "Beyond Bias and Barriers: Fulfilling the Potential of Women in Academic Science and Engineering." The National Academies Press: Washington, DC. http://www.nap.edu/catalog/11741.html .

Carnes, Molly. 2006. "Gender: Macho Language and Other Deterrents." Letter to the Editor. *Nature*. 442:868. **PMID: 16929276.**

Sheridan, Jennifer; Patricia Flately Brennan; Molly Carnes; and Jo Handelsman. 2006. "Discovering Directions for Change in Higher Education Through the Experiences of Senior Women Faculty." *Journal of Technology Transfer*. 31(3): 387-396.

Carnes, Molly; Stacie Geller; Evelyn Fine; Jennifer Sheridan; and Jo Handelsman. 2005. "NIH Director's Pioneer Awards: Could the Selection Process be Biased Against Women?" *Journal of Women's Health*. 14(8):684-691. **PMID: 16232100.**

Carnes, Molly; Jo Handelsman; and Jennifer Sheridan. 2005. "Diversity in Academic Medicine: The Stages of Change Model." *Journal of Women's Health*. 14(6):471-475. **PMID: 16115000.**

Handelsman, Jo; Nancy Cantor; Molly Carnes; Denice Denton; Eve Fine; Barbara Grosz; Virginia Hinshaw; Cora Marrett; Sue Rosser; Donna Shalala; and Jennifer Sheridan. 2005. "More Women in Science." *Science*. 309(5738):1190-1191. **PMID: 16109868.**

Gunter, Ramona and Amy Stambach. 2005. "Differences in Men and Women Scientists' Perceptions of Workplace Climate." *Journal of Women in Minorities in Science & Engineering*. 11(1):97-116.

Gunter, Ramona and Amy Stambach. 2003. "As Balancing Act and As Game: How Women and Men Science Faculty Experience the Promotion Process." *Gender Issues*. 21(1):24-42.

Sheridan, Jennifer; Molly Carnes; and Jo Handelsman. 2003. "The University of Wisconsin-Madison ADVANCE Program: Progress to Date." Women in Engineering Programs & Advocates Network (WEPAN) 2003 Conference Proceedings (on CD-ROM). http://www.wepan.org/storelistitem.cfm?itemnumber=14 , Paper #1040. June 2003. Available online: http://dpubs.libraries.psu.edu/DPubS?service=Repository&version=1.0&verb=Disseminate&view=body&content-type=pdf_1&handle=psu.wepan/1181071718# .

Bakken, Lori L.; Jennifer Sheridan; and Molly Carnes. 2003. "Gender Differences Among Physician-Scientists in Self-Assessed Abilities to Perform Clinical Research." *Academic Medicine*. 78(12):1281-6. **PMID: 14660433.**

Working Papers:

Sheridan, Jennifer; Jo Handelsman; Amy Wendt; and Molly Carnes. 2007. "ADVANCE at the University of Wisconsin-Madison: Progress Towards Transforming the College of Engineering." Working paper.

Pribbenow, Christine Maidl; Jennifer Sheridan; Molly Carnes; Eve Fine; and Jo Handelsman. "Departmental Climate: Differing Perceptions by Faculty Members and Chairs." *The Journal of Women and Minorities in Science and Engineering*. [draft accepted and under revision.]

Dissertations:

O'Connell, Kathleen A. 2010. "Academic Change and Innovation: Obstacles and strategies for Overcoming Barriers. Major Barriers and Strategies for Overcoming Them in Initiating and Implementing Organizational Change: The Case of the University of

Wisconsin-Madison Women in Science and Engineering Leadership Institute (WISELI)." Doctoral Dissertation: University of Wisconsin-Madison.

Gunter, Ramona. 2007. "Laboratory Talk: Gendered Interactions and Research Progress in Graduate Science Education." Doctoral Dissertation: University of Wisconsin-Madison.

Presentations:

Sheridan, Jennifer. November 29, 2010. "Enhancing Department Climate: A Chair's Role." Invited speaker, North Dakota State University. Fargo, ND.

Carnes, Molly. November 17, 2010. "Gender Stereotypes and Academic Careers: What You Don't Know Can Hurt You." University of Connecticut Medical and Dental School. Farmington, CT.

Carnes, Molly. November 16, 2010. "The Importance of Bias Literacy in Achieving Diversity in STEMM." University of Connecticut Storrs Campus. Storrs, CT.

Carnes, Molly. November 6-7, 2010. "Exploring Unconscious Bias." Invited speaker, AAMC Annual Meeting. Washington, DC.

Bier, Vicki. November 8, 2010. "Excellence and Diversity in Academia." Invited panelist. Institute for Operations Research and the Management Sciences Annual Meeting. Austin, TX.

Carnes, Molly. October 28, 2010. "What You Don't Know Can Hurt You: Gender Stereotypes and Academic Career Advancement." Medical Grand Rounds. University of Minnesota Medical School. Minneapolis, MN.

Carnes, Molly. October 22, 2010. "The Need for Bias Literacy to Advance Diversity." Invited 2010 Distinguished Lecturer. Stanford University. Stanford, CA.

Carnes, Molly. October 21, 2010. "Achieving Gender Equity in Academic Medicine: A Lot Harder Than We Thought." Invited 2010 Distinguished Lecturer. Stanford University. Stanford, CA.

Carnes, Molly. October 20, 2010. "Gender Equity in Academic Medicine: Time for Institutional Change." Invited 2010 Distinguished Lecturer. Stanford University. Stanford, CA.

Carnes, Molly. September 23, 2010. "The Effects of Bias on Faculty Careers." Invited panelist, "Alfred P. Sloan Projects for Faculty Career Flexibility Invitational Conference for Medical School Deans." University of Illinois-Chicago. Chicago, IL.

Fine, Eve; Cynthia Jameson; Constantine Megaridis; and Jennifer Sheridan. May 21, 2010. "Two Models of Faculty Search Committee Education: University of Illinois at Chicago (UIC) and the University of Wisconsin-Madison." Invited speakers, "Best Practices in Diversity Recruitment and Retention of Faculty and Staff." Greater Chicago Midwest Higher Education Recruitment Consortium (HERC) Symposium. Chicago, IL.

Sheridan, Jennifer. April 8, 2010. "Departmental Climate at UW-Madison: Measurement, Action, and Change." Invited speaker, Science and Technology Studies Brownbag Seminar. Madison, WI.

Handelsman, Jo. March 25, 2010. "Lessons Learned at UW: A Small Band of Dedicated People Can Make a Difference." Keynote Speaker, Luncheon in Honor of Jo Handelsman. Madison, WI.

Carnes, Molly. March 4, 2010. "Gender Equity in Academic Medicine." Invited Speaker, "Changing the Face of Medicine" Lecture Series. Madison, WI.

Sheridan, Jennifer. March 3, 2010. "Unconscious Biases and Assumptions: The Origins of Discrimination?" Invited speaker, Participatory Learning and Teaching Organization (PLATO) Seminar. Madison, WI.

Sheridan, Jennifer and Patricia Devine. February 16, 2010. "Unconscious Bias in Teaching." Panelists. Women Faculty Mentoring Program brownbag. University of Wisconsin-Madison. Madison, WI.

Carnes, Molly. January 8, 2010. "Gender Equity as Institutional Change." Department of Medicine Grand Rounds. Madison, WI.

Carnes, Molly. December 4, 2009. "More Women in Science: The Institutional Challenge." PRActising Gender Equality in Science (PRAGES) Conference. Rome, Italy.

Fine, Eve. October 30, 2009. "Enhancing Department Climate: A Workshop Series for Department Chairs." Invited speaker. 8th Annual NSF ADVANCE PI Meeting. Washington, DC.

Sheridan, Jennifer and Eve Fine. October 29, 2009. "Resources to Facilitate Institutional Transformation" Poster. 8th Annual NSF ADVANCE PI Meeting. Washington, DC.

Sheridan, Jennifer. October 22, 2009. "More Women in Science: The Institutional Challenge." Invited speaker. University of Virginia. Charlottesville, VA.

Pribbenow, Christine Maidl. July 29, 2009. "Evaluating Non-Profits." Radio Interview, In Business Magazine radio program. http://ibmadison.com/podcast?podcast_id=348 .

Sheridan, Jennifer. July 23, 2009. "Unconscious Biases & Assumptions: Implications for Evaluating Women's Leadership." Invited speaker, UW-Madison Women & Leadership Symposium 2009. Madison, WI.

Carnes, Molly. July 23, 2009. Invited panelist, "Mentoring Moments: Insights & Perspectives from Doris Slesinger Awardees." UW-Madison Women & Leadership Symposium 2009. Madison, WI.

Carnes, Molly. June 9, 2009. "Gender Issues in Academic Medicine, Science, and Engineering." Invited speaker, University of Iowa. Iowa City, IA.

Sheridan, Jennifer. May 15, 2009. "Bias and Assumptions: Implications for Evaluating Women and Minorities at Critical Career Junctures." Keynote speaker. University of

Wisconsin System Women & Science Program Spring Conference. Wisconsin Dells, WI.

Carnes, Molly. May 14, 2009. "Factors Contributing to and Influencing the Current State." Invited speaker, "Breaking the Glass Ceiling: Designing the Culture that Promotes Satisfaction and Success" Faculty Summit. Penn State Hershey College of Medicine. Hershey, PA.

Sheridan, Jennifer. April 29, 2009. "Bias and Assumptions: Implications for Evaluating Women and Minorities at Critical Career Junctures." Invited speaker. Rutgers University. New Brunswick, NJ.

Carnes, Molly. April 28, 2009. "Gender Bias in Academic Medicine: Pitfalls, Promise and Progress." Invited speaker. University of Pittsburgh. Pittsburgh, PA.

Carnes, Molly. April 27, 2009. "Faculty Evaluation: How Implicit Bias Can Derail Departmental Goals." Invited speaker, University of Pittsburgh. Pittsburgh, PA.

Wendt, Amy. April 21, 2009. "Diverse Scientists Panel." Panelist. Sennett Middle School. Madison, WI.

Carnes, Molly. March 29, 2009. "Forewarned is Forearmed: An Evidence-Based Approach to Advancing Women in Academic Medicine." Invited speaker. American College of Cardiology Annual Meeting. Orlando, FL.

Carnes, Molly. March 9, 2009. "Promoting Gender Equity in Academic STEMM: An Institutional Change Approach". Invited speaker. University of Virginia. Charlottesville, VA.

Sheridan, Jennifer. March 9, 2009. "More Women in Science: The Institutional Challenge." Invited speaker. University of Virginia. Charlottesville, VA.

Sheridan, Jennifer. February 27, 2009. "Project to Assess Climate in Engineering (PACE): Selected Results from UW-Madison." Invited speaker, College of Engineering Academic Affairs Monthly meeting. University of Wisconsin-Madison. Madison, WI.

Carnes, Molly. February 26, 2009. "Institutional Transformation." Invited speaker, College of Engineering Diversity Forum. University of Wisconsin-Madison. Madison, WI.

Sheridan, Jennifer. February 26, 2009. "Project to Assess Climate in Engineering (PACE): Selected Results from UW-Madison." Invited speaker, College of Engineering Diversity Forum. University of Wisconsin-Madison. Madison, WI.

Sheridan, Jennifer. February 19, 2009. "Understanding the Experiences of Underrepresented Students in Engineering: The PACE Study." Invited speaker, Sociology of Gender Brownbag Series. University of Wisconsin-Madison. Madison, WI.

Isaac, Carol; B. Lee, and Molly Carnes. November 2008. "Interventions that Affect Gender Bias in Hiring: A Systematic Review." Gerontological Society of America Annual Meeting. National Harbor, MD.

Carnes, Molly. October 21, 2008. "Searching for Excellence & Diversity: An Evidence-Based Approach to Training Search Committees." Presented at the West Virginia Higher Education Policy Commission's workshop "Building Diversity in Higher Education: Strategies for Broadening Participation in the Sciences and Engineering." Charleston, West Virginia.

Fine, Eve. October 14, 2008. "Reviewing Applicants: Understanding and Minimizing the Potential Influence of Bias and Assumptions." North Carolina State University, "Forum on Recruiting Diverse Faculty." Raleigh, North Carolina.

Sheridan, Jennifer; Amy Wendt; Christine Maidl Pribbenow; Molly Carnes. October 10, 2008. "The Vilas Life Cycle Professorship Program at the UW-Madison." Poster presented at "The New Norm of Faculty Flexibility: Transforming the Culture in Science & Engineering" Conference. Ames, IA.

Handelsman, Jo. June 2, 2008. "Beyond Bias and Barriers." American Society for Microbiology Annual Meeting. Boston, MA.

Harrigan, Margaret N. May 28, 2008. "Evaluation of a Hiring Initiative: Recruitment and Retention of Faculty of Color, Dual Career Couples, and Women in Science." Association for Institutional Research Annual Forum. Seattle, WA.

Carnes, Molly. May 27, 2008. "University of Wisconsin-Madison ADVANCE Program: Did We Transform the Institution in 5 Years?" Invited speaker. Women in Science and Medicine Advisory Committee (WISMAC), UT Southwestern. Dallas, TX.

Neuwald, Anuschka. May 15, 2008. "Creating change: an open-dialogue about educational and institutional barriers in STEM education." University of Wisconsin System Women in Science Program Spring Advisory Board Meeting. Wisconsin Dells, WI.

Wendt, Amy. May 9, 2008. Discussion with women faculty in Engineering (invited speaker). University of Maryland. College Park, MD.

Sheridan, Jennifer. May 13, 2008. "Making Data Work FOR You." 7th Annual NSF ADVANCE PI Meeting. National Science Foundation. Washington, DC.

Carnes, Molly. May 12, 2008. "Promoting and Sustaining Institutional Change" (Moderator). 7th Annual NSF ADVANCE PI Meeting. National Science Foundation. Washington, DC.

Pribbenow, Christine Maidl. April 29, 2008. "Talking About Leaving: Why Faculty Leave UW-Madison and What We Can Do About It." Wisconsin Center for the Advancement of Postsecondary Education Brownbag. Madison, WI.

Sheridan, Jennifer and Eve Fine. April 22, 2008. "Searching for Excellence & Diversity." Invited Presentation to Waisman Center Faculty and Staff. Madison, WI.

Carnes, Molly. April 4, 2008. "Eliminating Bias in Scientific Review." From Cells to Society: A joint symposium hosted by the Center for Women's Health Research and the Endocrinology-Reproductive Physiology Program. University of Wisconsin-Madison. Madison, WI.

Carnes, Molly. March 29, 2008. "Language and Women's Academic Advancement" and "Careers in Academic Medicine: Evaluation at Gatekeeping Junctures." Women in Medicine Day. University of Virginia. Charlottesville, VA.

Sheridan, Jennifer. March 4, 2008. "Enhancing Departmental Climate to Promote the Development of Women Leaders in Academia." Invited speaker, "Women in Biomedical Research: Best Practices for Sustaining Career Success" workshop. National Institutes of Health. Bethesda, MD.

Sheridan, Jennifer. February 20, 2008. "More Women in Science: The Institutional Challenge." Invited speaker, University of Minnesota-Duluth. Duluth, MN.

Sheridan, Jennifer. February 2008. "So You Want to Run a Climate Survey?" Presented at the "Improving the climate for Your Science and Engineering Work Force" career workshop. American Association for the Advancement of Science (AAAS) Annual Meetings. Boston, MA.

Carnes, Molly. November 29, 2007. ADVANCE Distinguished Lecture Series. "UW-Madison ADVANCE Program: Did we transform the institution in 5 years?" National Science Foundation. Washington, DC.

Carnes, Molly. November 27-28, 2007. "Procedures that Activate or Mitigate Gender Bias in Scientific Review." Chair, NIH National Leadership Workshop on Mentoring Women in Biomedical Careers. National Institutes of Health. Washington, DC.

Handelsman, Jo. November 15-16, 2007. "Beyond Bias and Barriers: Strategies for an Equitable Hiring Process." University of Maryland-Baltimore County. Baltimore, MD.

Mathews, Nancy. November 13, 2007. Invited presentation, "Balancing Work and Life in the Academy in the 21st Century: A Changing Paradigm for Women?" 28th Annual meeting of the Society for Environmental Toxicology and Chemistry. Milwaukee, WI.

Carnes, Molly. November 4, 2007. Panelist, "Women's Academic Advancement: The Influence of Language." Association of American Medical Colleges Annual Meeting. Washington, DC.

Sheridan, Jennifer. October 4, 2007. "The Climate for Faculty of Color in the Biological & Physical Sciences at UW-Madison." Invited Speaker, Graduate Engineering Research Scholars (GERS) Program. Madison, WI.

Sheridan, Jennifer; Eve Fine; Jessica Winchell; Christine Maidl Pribbenow; Molly Carnes; and Jo Handelsman. June, 2007. "Searching for Excellence & Diversity: Does Training Faculty Search Committees Improve Hiring of Women?" American Society for Engineering Education (ASEE) Annual Meetings. Honolulu, HI.

Sheridan, Jennifer. June, 2007. Moderator, "Climate Surveys Panel." 6th Annual NSF ADVANCE PI Meeting. National Science Foundation. Washington, DC.

Sheridan, Jennifer; Christine Maidl Pribbenow; Eve Fine; Jo Handelsman; and Molly Carnes. June 2007. "Climate Change at the University of Wisconsin-Madison: What Changed, and Did ADVANCE Have an Impact?" Women in Engineering Programs & Advocates Network (WEPAN) 2007 Annual Meeting. Orlando, FL.

Carnes, Molly. May 23-25, 2007. "Women Leaders in Medicine: Institutional Transformation Required" (Whittington Lecturer) and "Careers in Academic Medicine: Evaluation at Gatekeeping Junctions" (Medical Grand Rounds). University of Florida. Gainsville, FL.

Carnes, Molly. May 2-3, 2007. "NIH Director's Pioneer Award: Lesson in Scientific Review" and "Workshop: Lessons Learned in Shaping a Career" (Invited speaker). Brown University. Providence, RI.

Parker, Brenda. April 19, 2007. "NSF ADVANCE: Lessons for Geography Departments" (Panelist). American Association of Geographers Annual Meetings. San Francisco, CA.

Carnes, Molly and Jennifer Sheridan. April 11-12, 2007. "Overview of WISELI: Lessons Learned" and "Overview of WISELI: New Initiatives at UW-Madison" (Invited speakers). University of Minnesota. Minneapolis, MN.

Sheridan, Jennifer. March 27, 2007. "WISELI: Improve Departmental Climate for Women Faculty and Faculty of Color" (Poster). Showcase 2007. University of Wisconsin-Madison. Madison, WI.

Carnes, Molly. March 21-22, 2007. "Careers in Academic Medicine: Evaluation at Gatekeeping Junctures" (Medical Grand Rounds) and "Women Leaders in Academic Health Sciences: Institutional Transformation Required" (Invited speaker). University of Utah. Salt Lake City, UT.

Carnes, Molly. March 14, 2007. "Bias in Scientific Review: The Case of the NIH Directors Pioneer Award." Center for the Study of Cultural Diversity in Healthcare Training Seminar. University of Wisconsin-Madison. Madison, WI.

Carnes, Molly. February 22, 2007. "Words Matter: How Language Can Promote the Activation of Stereotypes" (Invited speaker). University of Illinois-Chicago. Chicago, IL.

Carnes, Molly. February 21, 2007. "Gender Bias in Scientific Review" (Invited speaker). Medical College of Wisconsin. Milwaukee, WI.

Sheridan, Jennifer. January 30, 2007. "Beyond Bias and Barriers: Fulfilling the Potential of Women in Academic Science and Engineering." Center for Demography & Ecology Training Seminar. University of Wisconsin-Madison. Madison, WI.

Sheridan, Jennifer. January 17, 2007. "Beyond Bias and Barriers." Zonta International. Madison, WI.

Handelsman, Jo. November 10, 2006. "Best Practices and Gender Equity in the Academy." University of Lethbridge. Lethbridge, Alberta, Canada.

Handelsman, Jo. November 3, 2006. "Beyond Bias and Barriers: A Call to Arms about Women in Science" (Keynote). Cabinet 99 Symposium. University of Wisconsin-Madison. Madison, WI.

Handelsman, Jo. October 29-30, 2006. "Diversity." Invited speaker, all-school assembly at Phillips Exeter Academy. Exeter, NH.

Handelsman, Jo. October 24, 2006. Briefing of NIH officials and the Women in Medicine committee on the "Beyond Bias" report. Bethesda, MD.

Sheridan, Jennifer. October 21, 2006. "Systemic and Institutional Barriers Women Face in Science and Engineering." "Encouraging Success in Science and Medicine" Symposium. University of Wisconsin-Madison. Madison, WI.

Handelsman, Jo. September 26-27, 2006. Briefing of Senators Kennedy and Murray's aides on "Beyond Bias and Barriers" report from the National Academies Committee on Maximizing the Potential of Women in Academic Science and Engineering. Washington, DC.

Sheridan, Jennifer. August 13, 2006. "Why Does ADVANCE Need Sociologists?" Annual Meeting of the American Sociological Association. Montréal, Canada.

Carnes, Molly. August 3, 2006. "Activation of Gender-Based Stereotypes: Can This Undermine Women's Academic Advancement?" (Keynote Plenary Address). Annual Meeting of the Association for Education in Journalism and Mass Communication. San Francisco, CA.

Handelsman, Jo. June 2006. Workshop on Diversity. National Academies Summer Institute on Undergraduate Education in Biology. University of Wisconsin-Madison. Madison, WI.

Carnes, Molly. June 19, 2006. "Gender Bias in Scientific Review: A Case Study of the NIH Pioneer Award." Annual meeting of the Graduate Women in Science. University of Wisconsin-Madison. Madison, WI.

Sheridan, Jennifer. May 24, 2006. "Searching for Excellence & Diversity: An Evidence-Based Approach to Training Search Committees." Wisconsin Association for Equal Opportunity's 29th Annual Spring Conference. Milwaukee, WI.

Carnes, Molly. May 19, 2006. "Institutionalization—Cross Site Findings of Institutionalization Workgroup" (Discussant). 5th Annual NSF ADVANCE PI Meeting. National Science Foundation. Washington, DC.

Pribbenow, Christine. May 19, 2006. "Using Evaluation Data to Affect Institutional Change." 5th Annual NSF ADVANCE PI Meeting. National Science Foundation. Washington, DC.

Sheridan, Jennifer. May 19, 2006. "Collection and Use of Climate Survey Data at the UW-Madison." 5th Annual NSF ADVANCE PI Meeting. National Science Foundation. Washington, DC.

Carnes, Molly. May 18, 2006. "Engaging Senior Female Faculty" Roundtable (Chair). 5th Annual NSF ADVANCE PI Meeting. National Science Foundation. Washington, DC.

Sheridan, Jennifer. May 18, 2006. "Vilas Life Cycle Professorship Program." 5th Annual NSF ADVANCE PI Meeting. National Science Foundation. Washington, DC.

Fine, Eve. May 18, 2006. "Climate Workshops for Department Chairs." 5th Annual NSF ADVANCE PI Meeting. National Science Foundation. Washington, DC.

Fine, Eve and Jennifer Sheridan. May 17, 2006. "Searching for Excellence & Diversity—Training Workshops for Search Committees" (Poster). 5th Annual NSF ADVANCE PI Meeting. National Science Foundation. Washington, DC.

Sheridan, Jennifer. May 17, 2006. "Lessons Learned from ADVANCE at the UW-Madison: What We Wish We Had Known…." 5th Annual NSF ADVANCE PI Meeting. National Science Foundation. Washington, DC.

Sheridan, Jennifer. May 17, 2006. "Data Collection and Reporting: The NSF Indicators." 5th Annual NSF ADVANCE PI Meeting. National Science Foundation. Washington, DC.

Ford, Cecilia. May 15, 2006. "Methods and Challenges in the Study of Language in Interaction" (Invited speaker). Department of Linguistics. Stockholm University. Stockholm, Sweden.

Ford, Cecilia. May 11-14, 2006. "Studying Turn Taking in Workplace Meetings as 'Interdisciplinary/Applied' Conversation Analysis." International Conference on Conversation Analysis. Helsinki, Finland.

Carnes, Molly. April 22, 2006. "Gender Bias in Scientific Review: The Case of the NIH Pioneer Awards" (Keynote). Institute for Research and Education on Women and Gender, Graduate Student Conference. State University of New York-Buffalo. Buffalo, NY.

Sheridan, Jennifer. April 7, 2006. "Searching for Excellence & Diversity: An Evidence-Based Approach to Training Search Committees." 10th Annual Absence of Color Conference. Blackhawk Technical College. Janesville, WI.

Gunter, Ramona. April 3, 2006. "Men and Women Graduate Students' Experiences in Two Plant Science Laboratories." Fort Atkinson Branch of American Association of University Women Meeting. Fort Atkinson, WI.

Sheridan, Jennifer. March 17, 2006. "Climate and Institutional Change: ADVANCE Efforts to Improve Departmental Climate." Committee on Institutional Change-Women in Science and Engineering (CIC-WISE) Group Meeting. Chicago, IL.

Sheridan, Jennifer. March 14, 2006. "Searching for Excellence & Diversity: An Evidence-Based Approach to Training Search Committees." Wisconsin Technical College System Leadership Development Institute. Madison, WI.

Ford, Cecilia. March 8, 2006. "The Extraordinary Precision of Ordinary Talk: A Linguist's Perspective on Social Interaction." University Roundtable. University of Wisconsin-Madison. Madison, WI.

Handelsman, Jo. February 23, 2006. "Understanding Our Biases and Assumptions: Male and Female" (Invited speaker). Stanford University. Stanford, CA.

Sheridan, Jennifer. February 20, 2006. "Methodological Challenges in Measuring Institutional Transformation, Part II: The Limits of Quantitative Indicators." 2006 American Association for the Advancement of Science Annual Meeting. St. Louis, MO.

Handelsman, Jo. February 9, 2006. "Boosts and Barriers to Women in Science." Barnard College. New York, NY.

Handelsman, Jo. January 11, 2006. "More Women in Science." Madison Chapter of TEMPO. Madison, WI.

Handelsman, Jo; Molly Carnes; Jennifer Sheridan; Eve Fine; and Christine Pribbenow. December 9, 2005. "NSF ADVANCE at the UW-Madison: Three Success Stories" (Poster). National Academies' "Convocation on Maximizing the Potential of Women in Academic Science and Engineering." National Academies of Science. Washington, DC.

Handelsman, Jo. November 29, 2005. Roundtable discussion with faculty and administrators on women in science. Colorado State University. Ft. Collins, CO.

Carnes, Molly. October 21, 2005. "Women and Leadership: When Working Hard is Not Enough." Wisconsin Women's Health Foundation Rural Women's Health. Madison, WI.

Carnes, Molly. October 17, 2005. "Women in Academic Leadership: Institutional Transformation Required" and "Advice From a Few Mistakes I've Made & Some Things I've Done Right (workshop)." 8th Annual Professional Development Conference Focus on Health & Leadership for Women. University of Pennsylvania School of Medicine. Philadelphia, PA.

Ford, Cecilia and Teddy Weathersbee. July 25, 2005. "Women's Agency and Participation: Feminist Research for Institutional Change." Symposium on Gender in Public Settings: Approaches to Third Wave Feminist Analysis at the 14th World Congress of Applied Linguistics Conference. University of Wisconsin-Madison. Madison, WI.

Handelsman, Jo. July 11, 2005. "Diversity, Bias, and Change" (Invited speaker). Harvard Deans' Retreat. Harvard University. Cambridge, MA.

Ford, Cecilia and Barbara A. Fox. July 6-9, 2005. "Reference and Repair as Grammatical Practices in an Extended Turn" (Plenary address). 15th Annual Meeting of the Society for Text & Discourse. Amsterdam, Netherlands.

Ford, Cecilia. June 11-16, 2005. "'Can I Make a Brief Comment on That': Reference and Social Organization In and Around an Extended Turn" (Invited lecture). Symposium on Reference and Referential Form in Interactional Linguistics, organized by the Nordic Research Board. Helsinki, Finland.

Handelsman, Jo. June 9-10, 2005. "Sex and Science." Howard Hughes Medical Institute New Investigator Training. Howard Hughes Medical Institute. Chevy Chase, MD.

Zweibel, Ellen. June 2, 2005. "Dual Career Initiatives at U. Wisconsin." American Astronomical Society Annual Meeting. Minneapolis, MN.

Fine, Eve. May 20, 2005. "Working with Department Chairs: Enhancing Department Climate." 4th Annual NSF ADVANCE PI Meeting. National Science Foundation. Washington, DC.

Handelsman, Jo. May 20, 2005. "Affecting Climate/Culture Change — Using Multiple Points of Entry in the Department of Kumquat Science." 4th Annual NSF ADVANCE PI Meeting. National Science Foundation. Washington, DC.

Carnes, Molly. May 19, 2005. "Converting Academic Staff to the Tenure Track at the UW-Madison: A Viable Strategy?" 4th Annual NSF ADVANCE PI Meeting. National Science Foundation. Washington, DC.

Carnes, Molly. May 19, 2005. "Insights from Social Science Research on Achieving Academic Awards and Honors: A Local and a National Example." 4th Annual NSF ADVANCE PI Meeting. National Science Foundation. Washington, DC.

Sheridan, Jennifer. May 19, 2005. "Indicators and Dissemination: Question 2. What are the Outcomes of Institutional Processes of Recruitment and Advancement for Men and Women?" NSF ADVANCE P.I. Meeting, National Science Foundation. Washington, DC.

Sheridan, Jennifer. May 19, 2005. "WISELI's Life Cycle Research Grant Program." 4th Annual NSF ADVANCE PI Meeting. National Science Foundation. Washington, DC.

Carnes, Molly. May 13, 2005. "Women in Academic Leadership: Has There Been Progress?" (Keynote). Women Against Lung Cancer Annual Meeting. Orlando, FL.

Carnes, Molly. May 9-10, 2005. "Incorporating Research on Biases and Assumptions into Search Committee Training;" "Women in the World of Academic Health Sciences: What's Holding Us Back?" "Women in Academic Leadership: Has There Been Progress?" (Invited Speaker). University of Minnesota. Minneapolis, MN.

Ford, Cecilia. May 2005. "Language and Heteronormativity." Workshop on Global Perspectives on Sexual Diversity and Gender Relations in a Changing World. Multicultural Student Center and International Student Services. University of Wisconsin-Madison. Madison, WI.

Carnes, Molly. April 26, 2005. "Women in Academic Leadership: Institutional Transformation Required" (Grand Rounds/Merritt Lecture). Indiana University School of Medicine. Indianapolis, IN.

Coppersmith, Sue. April 8, 2005. "NSF ADVANCE Institutional Transformation Award at UW-Madison." Mathematical and Physical Sciences (MPS) Advisory Committee Meeting. National Science Foundation. Washington, DC.

Carnes, Molly. March 12, 2005. "Women Physicians and Leadership: The Issues, The Goals, The Process" (Keynote). Women's Physician Council of the American Medical Association. Washington, DC.

Carnes, Molly. March 4, 2005. "Women in the World of Medicine: What's Holding Us Back?" *Leadership Skills and Equity in the Workplace: Lessons Learned* Conference. Virginia Commonwealth University. Richmond, VA.

Handelsman, Jo. March 2, 2005. Informal workshop on bias and prejudice in academic evaluation. Oregon State University. Corvallis, OR.

Peercy, Paul. December 13, 2004. "NSF ADVANCE Institutional Transformation Award at UW-Madison." NSF ADVANCE Engineering Workshop. National Science Foundation. Washington, DC.

Carnes, Molly; Jo Handelsman; Lillian Tong; and Amy Wendt. December 8, 2004. "WISELI Update—Status of Our Efforts to Promote the Advancement of Women in Science and Engineering." WISELI Seminar. University of Wisconsin-Madison. Madison, WI.

Carnes, Molly. November 17, 2004. "The Impact of Unconscious Biases on Evaluation: Relevance to the NIH Director's Pioneer Awards" (Invited presenter). Office of Research on Women's Health Roundtable. National Institutes of Health. Bethesda, MD.

Brennan, Patricia; Molly Carnes; Bernice Durand; Jo Handelsman; and Jennifer Sheridan. November 10, 2004. "Discovering the Experiences of Senior Women in Academic Science & Engineering." WISELI Seminar. University of Wisconsin-Madison. Madison, WI.

Carnes, Molly. October 20, 2004. "Women in Academic Leadership: The Issues, the Goals, the Process" (Invited Speaker); "NSF ADVANCE Program at UW-Madison" (Invited Speaker). University of Illinois-Chicago. Chicago, IL.

Sheridan, Jennifer. October 14, 2004. "WISELI's Life Cycle Research Grant Program." Society of Women Engineers 2004 National Conference. Milwaukee, WI.

Carnes, Molly. October 13, 2004. "Searching for Excellence, Equity & Diversity: Unconscious Assumptions and Lessons From Smoking Cessation" (Invited Speaker). Virginia Commonwealth University. Richmond, VA.

Sheridan, Jennifer; Jo Handelsman; and Molly Carnes. August 14, 2004. "Assessing "Readiness to Embrace Diversity": An Application of the Trans-Theoretical Model of Behavioral Change." Annual Meeting of the American Sociological Association. San Francisco, CA.

Ford, Cecilia. May 3, 2004. "'Having our ideas ignored': CA and a Feminist Project." American Association for Applied Linguistics Annual Conference. Colloquium entitled "CA as Applied Linguistics: Crossing Boundaries of Discipline and Practice." Portland, OR.

Spear, Peter. April 21, 2004. "Sustainability of ADVANCE Programs" (Panelist). NSF ADVANCE National Conference. Georgia Institute of Technology. Atlanta, GA.

Sheridan, Jennifer. April 21, 2004. "WISELI's Study of Faculty and Academic Staff Worklife Surveys." NSF ADVANCE National Conference. Georgia Institute of Technology. Atlanta, GA.

Durand, Bernice. April 20, 2004. Session Coordinator, "Senior Women and Advancement—A Facilitated Discussion" panel. NSF ADVANCE National Conference. Georgia Institute of Technology. Atlanta, GA.

Carnes, Molly. April 20, 2004. "Women from Underrepresented Groups" (Panelist). NSF ADVANCE National Conference. Atlanta, GA.

Sheridan, Jennifer. April 20, 2004. "ADVANCE Institutional Data: Using Institutional Data to Create Institutional Change." NSF ADVANCE National Conference. Georgia Institute of Technology. Atlanta, GA.

Sheridan, Jennifer. April 13, 2004. "Study of Academic Staff Work Life at UW-Madison: Preliminary Results." Wisconsin Center for the Advancement of Postsecondary Education Academic Staff Institute 2004. University of Wisconsin-Madison. Madison, WI.

Sheridan, Jennifer and Eve Fine. April 5, 2004. "WISELI Leadership Workshops" (Poster). Showcase 2004. University of Wisconsin-Madison. Madison, WI.

Pribbenow, Christine Maidl. March 22, 2004. "The Climate for Women Faculty in the Sciences and Engineering: Blueprints for Failure and Success." WISELI Seminar. University of Wisconsin-Madison. Madison, WI.

Sheridan, Jennifer. February 17, 2004. "Implementing a Campus Climate Survey: Logistical Notes and Preliminary Findings." Center for Demography & Ecology Training Seminar. University of Wisconsin-Madison. Madison, WI.

Ford, Cecilia. February 16, 2004. "Getting our Voices Heard: Patterns of Participation in University Meetings." WISELI Seminar. Madison, WI.

Carnes, Molly. February 13, 2004. "Status of STEM Female Faculty Recruitment, Retention and Advancement" (Discussant). "Systemic Transformations in the Role of Women in Science and Engineering" Symposium, 2004 American Association for the Advancement of Science Annual Meeting. Seattle, WA.

Sheridan, Jennifer. January 12, 2004. "Women in Science & Engineering Leadership Institute at UW-Madison" (Panelist). AdvanceVT Inaugural Workshop, "ADVANCEing Women in Academe: Voices of Experience." Virginia Tech. Blacksburg, VA.

Sheridan, Jennifer. November 17, 2003. "Faculty Worklife at the University of Wisconsin-Madison: Preliminary Findings." WISELI Seminar. University of Wisconsin-Madison. Madison, WI.

Gunter, Ramona. October 20, 2003. "Science Faculty Talk about Self, Home, and Career." WISELI Seminar. University of Wisconsin-Madison. Madison, WI.

Ford, Cecilia. September 16, 2003. "Gender and Talk: Looking Back and Looking Forward." Women's Health Forum of the UW-Madison Center for Women's Health and Women's Health Research. University of Wisconsin-Madison. Madison, WI.

Wendt, Amy. September 2003. "NSF ADVANCE at UW-Madison: WISELI Activities." 25th Anniversary of the Women in Computer Science and Engineering Organization. University of California-Berkeley. Berkeley, CA.

Sheridan, Jennifer; Molly Carnes; and Jo Handelsman. June 2003. "The University of Wisconsin-Madison ADVANCE Program: Progress to Date." Women in Engineering Programs & Advocates Network (WEPAN) 2003 Annual Meeting. Chicago, IL.

Stambach, Amy and Ramona Gunter. May 2003. "As Balancing Act and As Game: How Women and Men Science Faculty Experience the Promotion Process." Gender, Science, and Technology International Conference. Trondheim, Norway.

Ford, Cecilia. July 2003. "Gender and Language in/as/on Academic Science: Combining Research with a Commitment to Institutional Change." Perception and Realization in Language and Gender Research Conference. Michigan State University. East Lansing, MI.

Murphy, Regina. November 2002. "The Women in Science & Engineering Leadership Institute at UW-Madison." American Institute of Chemical Engineers (AIChE) Annual Meeting. Indianapolis, IN.

Handelsman, Jo and Molly Carnes. December 2002. "University of Wisconsin-Madison Women in Science and Engineering Leadership Institute." Plant Pathology Research Seminar Series. University of Wisconsin-Madison. Madison, WI.

Carnes, Molly and Jo Handelsman. October 2002. "The NSF ADVANCE Program at the University of Wisconsin-Madison: An Interdisciplinary Effort to Increase the Recruitment, Retention, and Advancement of Women in Academic Departments in the Biological and Physical Sciences." Retaining Women in Early Academic Science, Mathematics, Engineering, and Technology Careers Conference. Iowa State University. Ames, IA.

Sheridan, Jennifer; Molly Carnes; and Jo Handelsman. April 3, 2002. "WISELI" (Poster). Showcase 2002. University of Wisconsin-Madison. Madison, WI.

Campus Visits/Dissemination of Programming:

"Advancing Ways of Awarding Recognition in Disciplinary Societies (AWARDS) Workshop." June 23-24, 2010. American Women in Science (AWIS). Washington, DC.

"Searching for Excellence & Diversity" workshop and "Implementing Workships for Search Committees" workshop. January 7, 2010. South Dakota School of Mines & Technology. Rapid City, SD. (Also in attendance were participants from Northern State University, South Dakota State University, and North Dakota State University.)

"Breaking the Prejudice Habit Through Bias Literacy" workshop. October 22, 2009. University of Virginia. Charlottesville, VA.

"Implementing Climate Workshops for Department Chairs: A Training Session for Workshop Facilitators." June 2, 2009. University of Wisconsin-Madison. Madison, WI.

"Searching for Excellence & Diversity" workshop, and "Implementing Workshops for Search Committees" workshop. May 12, 2009. Skidmore College and Union College. Schenectady, NY.

"Breaking the Prejudice Habit Through Bias Literacy" workshop. March 9, 2009. University of Virginia. Charlottesville, VA.

"Searching for Excellence & Diversity" workshop, and "Implementing Workshops for Search Committees" workshop. February 9, 2009. University of Delaware. Newark, DE.

"Searching for Excellence & Diversity" workshop, and "Implementing Workshops for Search Committees" workshop. January 16, 2009. Purdue University. West Lafayette, IN.

"Implementing Workshops for Search Committees: A Train-the-Trainer Workshop for Campuses Wanting to Implement Training for Faculty Search Committees." June 24-25, 2008. University of Illinois-Urbana/Champaign. Urbana, IL.

"Searching for Excellence & Diversity" workshop, and "Implementing Workshops for Search Committees" workshop. June 12, 2008. Edgewood College. Madison, WI.

"Searching for Excellence & Diversity" workshop, and "Implementing Workshops for Search Committees" workshop. March 26-27, 2008. University of Alabama-Birmingham. Birmingham, AL.

"Searching for Excellence & Diversity" workshop, and "Implementing Workshops for Search Committees" workshop. January 24-25, 2008. Wayne State University. Detroit, MI.

"Searching for Excellence & Diversity" workshop, and "Implementing Workshops for Search Committees" workshop. January 15-16, 2008. University of Wisconsin-Eau Claire. Eau Claire, WI.

"Searching for Excellence & Diversity" workshop, and "Implementing Workshops for Search Committees" workshop. September 20-21, 2007. University of Wisconsin-Whitewater. Whitewater, WI.

Meet for information re: implementing *Searching for Excellence & Diversity* workshops. September 7, 2007. Deborah Love (Vice President for Institutional Equity) and Anne McCall (Associate Professor of French and Associate Dean, School for Liberal Arts). Tulane University.

Meet for information re: ADVANCE. May 18, 2007. Catherine Duckett (Project Manager, Office for the Promotion of Women in Science, Engineering, and Mathematics). Rutgers University.

Meet for information re: ADVANCE institutionalization. May 29, 2007. Trish Kalbas-Schmidt (Program Leader, ADVANCE). Utah State University.

Meet for information re: ADVANCE. April 11-12, 2007. Molly Carnes and Jennifer Sheridan travel to Institute of Technology, hosted by Roberta Humphries (Professor of Astronomy and Associate Dean for Academic Affairs). University of Minnesota.

Participation in training for facilitators for *Enhancing Department Climate: A Chair's Role* workshop. April 19, July 19, and August 30, 2007. Linda Siebert Rapoport (Director, Women in Science & Engineering System Transformation). University of Illinois-Chicago.

"Implementing Workshops for Search Committees." A train-the-trainer workshop for campuses wanting to implement training for faculty search committee chairs. March 5-March 7, 2007. Medical School and Danforth Campus. Washington University in St. Louis.

"Searching for Excellence & Diversity" workshop, and "Implementing Workshops for Search Committees" workshop. February 28-March 1, 2007. University of Wisconsin-Stout.

Meet for information re: ADVANCE and viewing of a *Searching for Excellence & Diversity* workshop. December 20, 2006. Catherine Mavriplis (Research Scientist: Cooperative Institute for Mesoscale Meteorological Studies (CIMMS) and NOAA National Severe Storms Laboratory) and Sheena Murphy (Professor of Physics). University of Oklahoma.

Meet for information re: ADVANCE and viewing of a *Searching for Excellence & Diversity* workshop. September 27, 2006. Nancy Tarbell (Director: Pediatric Radiation Oncology and Center for Faculty Development) and Rebecca Starr (Administrative Director: Center for Faculty Development, Office for Women's Careers, and Office for Research Career Development). Massachusetts General Hospital.

"Implementing Workshops for Search Committees." A train-the-trainer workshop for campuses wanting to implement training for faculty search committee chairs. January 26, 2006. Wisconsin Technical College System. Technical college campuses represented: Blackhawk, Chippewa Valley, Fox Valley, Gateway, Lakeshore, Madison Area, Mid-State, Milwaukee Area, Morraine Park, North Central, Northeast, Southwest, Waukesha County, Western Wisconsin, Wisconsin Indianhead.

"Implementing Workshops for Search Committees." A train-the-trainer workshop for campuses wanting to implement training for faculty search committee chairs. June 14, 2005. University of Wisconsin (UW) System. UW campuses represented: Eau Claire, Extension, Green Bay, La Crosse, Madison, Milwaukee, Oshkosh, Parkside, River Falls, Stevens Point, Stout, Whitewater.

WISELI in the Press:

"Reducing the Impact of Negative Stereotypes on the Careers of Minority and Women Scientists." Daisy Grewal. *Science Careers*. October 26, 2010. http://sciencecareers.sciencemag.org/career_magazine/previous_issues/articles/2010_11_26/caredit.a1000113#box .

"$2 Million Grant to Develop Game That Breaks Bias Against Women In Sciences." Simon Parkin. *Gamasutra*. October 13, 2010. http://www.gamasutra.com/view/news/30944/2_Million_Grant_To_Develop_Game_That_Breaks_Bias_Against_Women_In_Sciences.php .

"UW Researcher Gets Grant to Study Faculty Bias." Anna Assendorf. *The Badger Herald*. October 11, 2010. http://badgerherald.com/news/2010/10/11/uw_researcher_gets_g.php?sms_ss=email&at_xt=4cb4872191b56e7e,0 .

"Major Grant Aims at Breaking the Habit of Implicit Bias." University of Wisconsin-Madison Communications. October 11, 2010. http://www.news.wisc.edu/18509 .

"Barriers to Women's Advancement in the Sciences." Blog entry for the Institute for Women's Health Research at Northwestern University. July 19, 2010. http://blog.womenshealth.northwestern.edu/2010/07/barriers-to-womens-advancement-in-science/ .

"Making Visible the Invisible." *Focus* Newsletter. Burroughs Wellcome Fund. July, 2010. http://www.bwfund.org/pages/458/FEATURE-Women-in-Science-part-four/ .

"Strengthening Scientific Leadership for the Future." *UMOJA Magazine*. March, 2010.

"How Dishwashing Works Against Tenure." *The Chronicle of Higher Education*. January 20, 2010. http://chronicle.com/blogPost/How-Dishwashing-Works-Against/20574/ .

"Time Crunch for Female Scientists: They Do More Housework Than Men." *The Chronicle of Higher Education*. January 19, 2010. http://chronicle.com/article/Female-Scientists-Do-More/63641/ .

"Dr. Molly Carnes: Helping Women Advance in Science and Medicine." Kathryn Kingsbury. *Wisconsin Woman Magazine*. January 2010: 6-8. http://issuu.com/ogarapublishing/docs/wwjan2010 .

"Take Steps to Reduce Unconscious Bias in Hiring." *Women in Higher Education Newsletter*. December, 2009.

"The Flexibility Stigma." *BRAVA Magazine*. November 2009.

"Chairs Can Encourage Faculty to Use Flexible Policies." *Women in Higher Education Newsletter*. November, 2009.

"Wisconsin Girls Collaborative Project 2009-10 STEM Collaboration Grants." Bronze Sponsor. October 10, 2009. Wausau, WI.

"Academic Climate Change for Women in Science at University of Wisconsin-Madison." Laura L. Mays Hoopes. *Association for Women in Science (AWIS) Magazine*. Summer 2009. 40(3): 12-13.

"Female Airmen Underrepresented in Tech Field." *Air Force News*. March 8, 2009. http://www.airforcetimes.com/news/2009/03/airforce_technical_women_030709w/ .

"WVU Panel Urged to Consider Women, Minorities in Presidential Search." *Charleston Daily Mail*. October 27, 2008. http://www.dailymail.com/News/200810240247 .

"Researcher Finds that Women are Speaking Up." *University of Wisconsin Communications.* July 31, 2008. http://www.news.wisc.edu/15436.

"Engineering at Illinois Leads Campus Gender Equity Effort." *Engineering at Illinois News*. June 26, 2008. http://engineering.illinois.edu/news/rss.php?xId=074108800728 .

"When Life Intervenes, One University Steps Up to Help." Bernice Durand. *CSWP Gazette*. Spring, 2008. 27(1): 1,10.

"Ask the Physics Mentor." Bernice Durand. *CSWP Gazette*. Spring, 2008. 27(1): 12.

"Focus on Careers: Women in Science—Nurturing Women Scientists." Jill U. Adams. *Science*. February 8, 2008. 319(5864): 831–836.

"Help Women Stay in Science: A Female Scientist Gives Her Top 10 List of Tips for Her Male Colleagues—What Are Yours?" *The Scientist.com.* September 27, 2007. http://www.the-scientist.com/news/home/53655/ .

"Looking Through the Glass Ceiling of Science: Women in Science and Engineering Continue to Struggle for Equality." *The McGill Daily*. March 13, 2006. http://www.mcgilldaily.com/view.php?aid=4983 .

"WISELI Survey to Analyze Quality of Worklife for UW-Madison Faculty." *Wisconsin Week*. January 17, 2006. http://www.news.wisc.edu/12040.html.

"The Gender Gap in Science is Shrinking at Universities." *St. Louis Post-Dispatch*. October 23, 2005.

"Women in Science: Climbing the Career Ladder." Talk of the Nation, *National Public Radio*. August 26, 2005. http://www.npr.org/templates/story/story.php?storyId=4817270.

"Women Still Face Bias in Science." *Financial Times*. August 19, 2005.

"A Woman's Place in the Lab: Harvard Studies Efforts to Boost Female Faculty at U-Wisconsin." *The Boston Globe*. May 1, 2005. http://www.boston.com/news/local/articles/2005/05/01/campus_strives_to_boost_female_faculty/ .

"For Women in Sciences, Slow Progress in Academia." *The New York Times*. April 15, 2005. http://select.nytimes.com/gst/abstract.html?res=FA0912FE3A5A0C768DDDAD0894DD404482 .

"Gender, Attitude, Aptitude and UW: In the Wake of the Harvard President's Comments, UW Women Take a Look at Their Own Campus." *Wisconsin State Journal*. March 27, 2005. http://www.madison.com/archives/read.php?ref=/wsj/2005/03/27/0503260393.php .

"Women in Medicine Said to Face Widespread Bias." *Richmond Times Dispatch*. March 6, 2005.

"Working for Women." *Wisconsin State Journal*. May 23, 2004. http://www.madison.com/archives/read.php?ref=/wsj/2004/05/23/0405190389.php .

"NSF Program Working to Help Women Attain Leadership in Science and Engineering." *UW-Madison College of Engineering Perspective*. Spring 2004. http://www.engr.wisc.edu/alumni/perspective/30.3/PerspectiveSpr2004.pdf .

"Documentary Depicts Women in Science." *Wisconsin Week*. February 24, 2004. http://www.news.wisc.edu/9465.html .

"Valian Speaks Out About Gender Inequality." *The Daily Cardinal*. October 6, 2003.

"Institute Plans Effort to Boost Women in Science." *Wisconsin Week*. March 26, 2002. **http://www.news.wisc.edu/7231.html .**

"Women in Science Get a Major Boost From NSF, UW-Madison." *Wisconsin Week*. October 19, 2001. http://www.news.wisc.edu/6687.html .

Awards for WISELI:

Alfred P. Sloan Award for Faculty Career Flexibility. $25,000 award for the Vilas Life Cycle Professorship Program. Funded by the American Council on Education (ACE) and the Sloan Foundation. May 11, 2006.

Products Available to the Public:

Videos:

"WISELI: *FORWARD* with Institutional Transformation." Documentary Video, third in series of three.

"WISELI: Building on a Legacy."

"WISELI: Advancing Institutional Transformation."

Brochures/Booklets:

Sheridan, Jennifer; Eve Fine; and Jo Handelsman. 2010. "Fostering Success for Women in Science & Engineering: Advice for Departmental Faculty."

Fine, Eve and Jo Handelsman. 2010. "Benefits and Challenges of Diversity."

Handelsman, Jo; Jennifer Sheridan; Eve Fine; and Molly Carnes. 2005, 2009. "Advancing Women in Science and Engineering: Advice to the Top."

Fine, Eve and Jennifer Sheridan. 2008. "Enhancing Department Climate: A Guide for Department Chairs."

Fine, Eve and Jo Handelsman. 2005, 2006. "Reviewing Applicants: Research on Bias and Assumptions."

Fine, Eve and Jo Handelsman. 2005. "Searching for Excellence and Diversity: A Guide for Faculty Search Committee Chairs."

Benting, Deveny and Jennifer Sheridan. 2004. "Advancing Your Career through Awards and Recognitions: A Guide for Women Faculty in the Sciences & Engineering."

Surveys:

Sheridan, Jennifer; Christine Maidl Pribbenow; Molly Carnes; and Amy Wendt. January 2010. "Study of Faculty Worklife at the University of Wisconsin-Madison, 2010." Climate survey instrument.

Sheridan, Jennifer; Christine Maidl Pribbenow; Molly Carnes; and Jo Handelsman. January 2006. "2006 Study of Faculty Worklife at the University of Wisconsin-Madison." Climate survey instrument.

Lottridge, Sue; Jennifer Sheridan; Christine Maidl Pribbenow; Molly Carnes; and Jo Handelsman. March, 2003. "Study of Faculty and Academic Staff Worklife at the University of Wisconsin-Madison." Climate survey instrument.

Lottridge, Sue; Jennifer Sheridan; Christine Maidl Pribbenow; Jo Handelsman; and Molly Carnes. January, 2003. "Study of Faculty Worklife at the University of Wisconsin-Madison." Climate survey instrument.

Reports to Funding Agencies:

Carnes, Molly. June 28, 2010. Advancement of Women in STEMM: A Multi-Level Research and Action Project. Annual Report, 2010.

Sheridan, Jennifer; Molly Carnes, Jo Handelsman, and Amy Wendt. December 2009. "Partnerships for Adaptation, Implementation, and Dissemination Annual Report 2009."

Sheridan, Jennifer; Molly Carnes, Jo Handelsman, and Amy Wendt. December 2008. "Partnerships for Adaptation, Implementation, and Dissemination Annual Report 2008."

Sheridan, Jennifer; Molly Carnes, Jo Handelsman, and Amy Wendt. December 2007. "Partnerships for Adaptation, Implementation, and Dissemination Annual Report 2007."

Sheridan, Jennifer; Molly Carnes and Jo Handelsman. September 2007. "Final Report of the ADVANCE Program for University of Wisconsin-Madison. 2002-2007."

Carnes, Molly; Jo Handelsman; and Jennifer Sheridan. 2006. "Annual Report of ADVANCE Program for University of Wisconsin-Madison."

Carnes, Molly; Jo Handelsman; and Jennifer Sheridan. 2005. "Annual Report of ADVANCE Program for University of Wisconsin-Madison."

Carnes, Molly; Jo Handelsman; and Jennifer Sheridan. 2004. "Annual Report of ADVANCE Program for University of Wisconsin-Madison."

Carnes, Molly; Jo Handelsman; and Jennifer Sheridan. 2003. "Annual Report of ADVANCE Program for University of Wisconsin-Madison."

Carnes, Molly; Jo Handelsman; and Jennifer Sheridan. 2002. "Annual Report of ADVANCE Program for University of Wisconsin-Madison."

Grant Proposals in Support of WISELI:

NSF Partnerships for Adaptation, Implementation, and Dissemination (PAID) program. "Searching for Excellence & Diversity: Interactive Online Course for Faculty Search Committees." PI: Jennifer Sheridan. Co-PI: Eve Fine. Submitted November 5, 2010. Not Funded.

NIH Director's ARA Funded Pathfinder Award to Promote Diversity in the Scientific Workforce. "Virtual Games for STEMM Faculty: Breaking the Bias Habit." PI: Molly Carnes. Submitted May 4, 2010. Funded.

NSF Partnerships for Adaptation, Implementation, and Dissemination (PAID) Research program. "Breaking the Prejudice Habit through Bias Literacy: A Group-Randomized Trial of a Gender Equity Intervention." PI: Molly Carnes. Co-PIs: Jennifer Sheridan, Patricia Devine, Cecilia Ford, Angela Byars-Winston, Linda Baier Manwell, Tara Becker, Marjorie Rosenberg. Submitted February 24, 2009. Not Funded.

NSF Innovative Technology Experiences for Students and Teachers (ITEST) program. "Society's Grand Challenges in Engineering as a Context for High School Instruction in Science, Engineering, Technology and Mathematics: an ITEST Strategy Proposal." PI: Amy Wendt. Co-PIs: Steve Cramer, Susan Hagness, Kimberly Howard, Allen Phelps. Submitted February 20, 2009. Funded.

NIH Research on Causal Factors and Interventions that Promote and Support the Careers of Women in Biomedical and Behavioral Research program. "Advancement of Women in STEMM: A Multi-level Research and Action Project." PI: Molly Carnes. Co-PIs: Jennifer Sheridan, Patricia Devine, Cecilia Ford, Angela Byars-Winston, Linda Baier Manwell, Tara Becker, Marjorie Rosenberg. Submitted October 22, 2008. Funded.

NSF Innovation Through Institutional Integration (I^3) program. "Wisconsin Institute for Research and Evaluation on Diversity in STEM." PI: Patrick Farrell. Co-PIs: Molly Carnes, Douglass Henderson, Jennifer Sheridan, Christine Pfund. Submitted April 9, 2008. Not Funded.

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CALS Department Chairs/Deans—10/28/2002, 1/26/2004, 12/1/2005, 1/23/2006, 12/15/2008, 2/22/2010
ENGR Department Chairs and Deans—11/6/2002, 2/4/2004, 1/4/2006, 10/1/2008
SMPH Clinical Science Chairs—10/14/2002, 3/9/2004, 1/10/2006, 9/22/2008
SMPH Basic Science Chairs—10/8/2002, 9/22/2008
SMPH Combined Chairs—11/22/2010
SMPH Retreat—3/12/2005
Pharmacy Division Heads and Deans—4/12/2004, 12/15/2005, 12/15/2009
SVM Department Chairs and Deans—12/17/2002, 2/5/2004, 11/15/2005, 10/20/2009
L&S Natural Science Chairs—11/18/2002, 9/20/2004, 12/19/2005, 12/14/2009
L&S (All) Department Chairs—12/19/2005
SoHE Department Chairs and Deans—2/23/2004
Education Department Chairs and Deans—3/3/2004
Business Department Chairs—10/29/2009
Biological Science Deans—12/16/2003

Graduate School Deans—9/30/2004, 8/31/2005
University Committee—2/14/2005, 8/20/2008
UW System AA/EEO Program Directors—2/21/2005
Wisconsin Technical Colleges AA/EEO Officers—10/14/2005
Council for Non-represented Classified Staff (CNCS)—2/13/2006
Department of Plant Pathology—12/4/2002
Women in Physical Sciences—5/2003, 2/23/2004
Women in Engineering—3/18/2004
University League—11/24/2003
College of Engineering (CoE) Academic Affairs—11/21/2003, 10/11/2007
CoE Equity & Diversity Committee—4/14/2004
CoE Committee on Academic Staff Issues—4/28/2004
Committee on Women in the University—2/18/2004, 1/12/2005, 11/9/2005, 12/13/2006, 5/14/2008
Women Faculty Mentoring Program—9/19/2003, 8/22/2008
Plan 2008 Campus Resource Fair/Diversity Forum—5/7/2002, 9/21/2006, 9/28/2007
Showcase—4/3/2002, 4/5/2004, 3/27/2007
Women Faculty in SMPH—3/11/2005
Academic Staff Executive Council—3/6/2003, 3/5/2004, 2/25/2005
Office of Human Resources—2/16/2005
WEMPEC—2/11/2005
UW System EEO Officers—4/13/2005
William S. Middleton Memorial VA Hospital—3/17/2005, 4/26/2005
CIRTL/DELTA—2/2/2005, 9/20/2005
UW Teaching & Learning Symposium—5/24/2005, 5/17/2006
UW Foundation—8/23/2005, 11/10/2005, 12/7/2005
WISELI Seminar—10/20/2003, 11/17/2003, 2/16/2004, 3/22/2004, 11/10/2004, 12/8/2004, 3/9/2005, 9/22/2005, 11/10/2005
Provost Department Chair Training—8/31/2006, 11/3/2006, 8/31/2006, 12/1/2006, 8/30/2007, 6/3/2008
L&S Equity & Diversity Committee—12/15/2006
Women's Philanthropy Council—4/26/2006
Bacteriology Teaching Institute—10/13/2006
Campus Diversity Plan Oversight Committee—2/8/2007
Wisconsin Institute for Discovery Program Committee—3/26/2007
SMPH Committee on Academic Staff Issues—5/15/2007
SMPH Equity & Diversity Committee—8/20/2009
Facilities Planning & Management Directors—9/29/2009
Faculty meetings in STEMM departments—
2009: Electrical & Computer Engineering, Endocrinology, Human Oncology, Medical History & Bioethics, Cardiovascular Medicine, Hematology & Oncology, Dermatology, Obstetrics & Gynecology, Genetics (CALS & SMPH), Surgery, Oncology, Biostatistics & Medical Informatics, Surgical Sciences, Pathobiological Sciences.
2010: Civil & Environmental Engineering, Biomedical Engineering, Engineering

Physics, Industrial & Systems Engineering, Mechanical Engineering, Anthropology, Economics, Physics, Sociology, Computer Sciences, Communication Arts, Botany, Statistics, Afro-American Studies, Atmospheric & Oceanic Sciences, LaFollette School of Public Affairs, Social Work, Mathematics, Psychology, Journalism/Mass Communication, Zoology, Geology & Geophysics, Urban & Regional Planning, Political Science, Astronomy, Chemistry, Communicative Disorders, Agronomy, Landscape Architecture, Food Science, Bacteriology, Life Sciences Communication, Entomology, Biochemistry, Dairy Science, Animal Science, Soil Science, Forest & Wildlife Ecology, Agricultural & Applied Economics, Horticulture, Plant Pathology, Nutritional Sciences, Biological Systems Engineering, Emergency Medicine, General Internal Medicine, Geriatrics, Biomolecular Chemistry, Family Medicine, Pathology & Laboratory Medicine, Neurological Surgery, Anesthesiology, Population Health Sciences, Rheumatology, Ophthalmology & Visual Sciences, Allergy & Pulmonary, Infectious Disease, Medical Physics, Pediatrics, Neurology, Radiology, Gastroenterology, Medical Microbiology, Nephrology, Psychiatry, Urology, Physiology, Orthopedics, Physical Therapy Program Pharmacology, Rehabilitative Medicine, Pharmacy Practice & Extension, Pharmacy Social & Administrative Sciences, Pharmacy Extension Services, Pharmaceutical Sciences, Medical Sciences, Comparative Biosciences.

Annual Report

2010

Co-Directors, *University of Wisconsin-Madison*

Dr. Molly Carnes, Professor of Medicine and Industrial & Systems Engineering
Dr. Amy Wendt, Professor of Electrical and Computer Engineering and co-Chair, Electrical and Computer Engineering
Dr. Jennifer Sheridan, WISELI

May, 2012

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I. Executive Summary: Major Accomplishments in Year 9

WISELI's new workshop series, *Retaining and Advancing Faculty Through Bias Literacy*, and the accompanying research around it, was a major focus of WISELI's activities in 2010.

Some of the major developments in 2010 included:

- Dr. Amy Wendt was awarded an NSF ITEST grant in 2010. This grant is a pilot study which will integrate teaching modules based on the "Engineering Grand Challenges" into science curricula in select middle schools throughout Wisconsin.
- Molly Carnes received a Pathfinder award from the NIH. This project aims to create a video game for faculty that will reduce bias against African American men in STEMM fields.
- Bias Literacy workshops were piloted and we began to roll them out to the approximately 45 departments selected to receive the workshops in the first wave.
- Cora Marrett, Deputy Director of the National Science Foundation, visited campus for the Denice D. Denton Distinguished Speaker series.
- A new *Study of Faculty Worklife* was administered to all faculty, including clinical faculty. The Office of the Provost and the School of Medicine and Public Health contributed substantially to the survey effort.
- The Vilas Trust resumed funding of the Vilas Life Cycle Professorship program, although at a lower level than in 2008.
- WISELI's dissemination efforts continued to reach more universities. Over 100 different institutions or academic groups purchased our materials, requested a workshop, asked for help or advice, visited campus, or invited WISELI personnel for talks this year. WISELI faculty and staff also published 8 papers, reviews, commentaries, or books in 2010, and one dissertation was produced using WISELI as a case study.

We anticipate that 2011 will bring new challenges as we implement the new *Bias Literacy* workshop across the UW-Madison campus.

II. Activities: Status of WISELI Initiatives

A. Workshops

Searching for Excellence & Diversity: A Workshop for Search Committee Members

WISELI continued to implement the *Searching for Excellence & Diversity* workshops in 2010. We ran 4 workshops in 2010; 2 were college-based, and 2 were open to any faculty member on campus. Three of the workshops were run in our preferred 2-session model. In addition, we presented 7 abbreviated workshops to individual search committees or units that requested a workshop. Forty-one faculty and 16 staff attended at least one of these workshops in 2010. This level of activity is about average for WISELI.

Enhancing Department Climate: A Chair's Role

The *Enhancing Department Climate: A Chair's Role* workshop was on hiatus in 2010, to avoid interference with the implementation of the *Bias Literacy* workshops (see below.)

Running a Great Lab: Workshops for Principal Investigators

WISELI has discontinued offering the *Running a Great Lab* workshops, due to lack of staff.

Retaining and Advancing Excellent Faculty Through Bias Literacy

In 2010, WISELI completed the design and piloting of the *Bias Literacy* workshops, and began presenting them in the 45 departments or units randomly selected to receive the workshop. We presented five workshops to four departments, with many more scheduled for 2011. Attendance at the workshops has been adequate, with between 14% and 46% of the departments' invitees attending.

B. Grant Programs

Vilas Life Cycle Professorship Program

In 2010, the Vilas Trust restored funding for the Vilas Life Cycle Professorship program, although at a lower level than in 2008, the last time they funded the program.

- In 2010, we received 27 applications and made 18 awards, in the amount of $420,862.
- In spring of 2010, an evaluation report was presented to the Trustees of the Vilas Estate. Such a report will be continued annually to encourage the Trustees to continue funding the program. This report is available online at: http://wiseli.engr.wisc.edu/docs/EvalReport_VLCP_2009.pdf .

Celebrating Women in Science & Engineering Grant Program

The *Celebrating* program was evaluated in 2009/10, and the results were very positive. We were encouraged by the findings to keep the program going, and so approached the major supporting units for additional funding commitments into the future. We did not ask for funds for 2010 (running the program on contributions that were leftover from previous

years.) We received commitments from: SMPH, ENGR, PHARM (reduced amount), VetMed (reduced amount), CALS (increased amount), L&S, and IES [1], to begin in 2011.

- In 2010, 8 awards were made. Two of the awards were to graduate students (new *Celebrating* grant applicants), and two others went to centers/units that are not department-based, but who also had never before received an award. The other four went to departments. Three of the departments had received a *Celebrating* grant in the past, and one was new.

C. Research & Evaluation Projects

Study of Faculty Worklife at UW-Madison

- A new *Study of Faculty Worklife at UW-Madison* was implemented in Spring 2010, with funding from WISELI, the School of Medicine & Public Health, and the Office of the Provost. We received a 56% response rate from tenured or tenure-track faculty, and a 50% response rate from Clinical/CHS faculty.
- Analysis of the data is ongoing as of the end of 2010.

Exit Interview Study

- The combined 2006-2008 *Faculty Attrition* study continued through 2010. The report, "Study of Faculty Attrition at UW-Madison: Combined Results: 2006 – 2008," was presented to Vice Provost Stern, and posted on the WISELI website.
- Vice Provost Stern has requested a quantitative analysis of the combined findings, to compare with data gathered by the Office of Academic Planning and Analysis. That report will be completed in 2011.

Gender Equity Indicators at UW-Madison

- Jennifer Sheridan continues to collect the data formerly required by the National Science Foundation, in order to track the status of women at UW-Madison. Margaret Harrigan in the Office of Academic Planning and Analysis; Eden Inoway-Ronnie in the Office of the Provost, and Lori Hayward in the Office of the Secretary of the Faculty are instrumental in the collection and reporting of these data, presented annually in WISELI reports and on the WISELI website.
- Data from 2000 through 2010 are posted publicly at: http://wiseli.engr.wisc.edu/indicators.php . The Gender Equity Indicators page also includes a set of Powerpoint slides summarizing trends in these data over time. We have made these available so that any interested person could include these data in their own presentations and reports.

[1] School of Medicine and Public Health (SMPH); College of Engineering (ENGR); School of Pharmacy (PHARM); School of Veterinary Medicine (VetMed); College of Agricultural and Life Sciences (CALS); College of Letters & Sciences (L&S); and the Nelson Institute for Environmental Studies (IES).

The Impact of Departmental Climate on Faculty Productivity and Attrition: A Structural Equation Modeling Analysis

- As part of the funded NIH R01 project, Jennifer Sheridan proposed to develop structural equation models (SEM) analyzing the relationships among departmental climate, faculty productivity, and faculty attrition. Work on this project will begin in 2010, with the collection of productivity and attrition data for all faculty in the STEMM departments. Modeling will begin with the 2003 data, and 2006 and 2010 data will be added on to form time-series analyses.

D. Networking Activities

Listserv

- The WISELI listserv has become a reliable way to communicate with our affiliates. Other organizations (e.g., the Provost's Office, the Wisconsin Women in Higher Education Leadership, CIRTL/DELTA, and others) have been asking us to post notices to our listserv to further inform our affiliates of events and opportunities. At the end of December, 2010, we have 288 affiliates on our listserv.

Website

- Traffic on the WISELI website declined in 2010, by about 20% from 2009. We received 20,450 hits from unique visitors in 2010, approximately 1,700 per month. Visitors to our site come mostly from the US/Puerto Rico (83.2%), but WISELI gets hits from across the globe. In 2010, much more of our traffic was from outside the U.S. than in 2009:
    - 5.7% of our hits were from Asia (Top 2: South Korea, India)
    - 4.5% from Europe (Top 2: Great Britain, Germany. 19% of hits from Europe come from an unknown European country)
    - 2.7% from Canada
    - 1.2% from Eastern Europe (Top 2: Ukraine, Russian Federation)
    - 1.1% from Middle East (Top 2: Egypt, Israel)
    - 0.6% from South America/Caribbean (Top 2: Brazil, Mexico)
    - 0.5% from Australia/New Zealand
    - 0.5% from Africa (Top 2: South Africa, Nigeria)

Denice D. Denton Distinguished Lecture Series

- Cora Marrett, Acting Deputy Director of the National Science Foundation, presented the 2010 Denice D. Denton Distinguished Lecture on November 19, 2010. Her schedule included a public lecture, a lunch with interdisciplinary leaders, and a lunch meeting with women STEM department chairs; details are available at: http://wiseli.engr.wisc.edu/denton/denton-lecture2010.php .
- Dr. Genevieve Bell, Intel Fellow and Director of the Interaction & Experience Research group at Intel Corporation, is the confirmed speaker for 2011.

Leadership Development for Women

- Molly Carnes taught Women and Leadership in Medicine, Science, and Engineering, (Interdisciplinary Engineering 650), Spring, 2010 (see Course Development below).

E. Dissemination Activities

Train the Trainers: *Implementing Training for Search Committees*

Interest in our *Implementing Workshops for Search Committees* workshop for campuses outside of UW-Madison has declined because we have dramatically increased our price, although we still received many inquiries. In 2010:

- We fielded 6 inquiries about the on-site workshop, either via phone or email:
  - University of Wisconsin-Superior
  - Oklahoma State University
  - University of Iowa
  - University of Alabama
  - Harrisburg University of Science & Technology
  - Delaware County Community College

- We received 1 request to do the workshop as a webinar:
  - Greater Midwest Chicago Higher Education Recruitment Consortium (HERC)

- We implemented the training at one university:
  - South Dakota School of Mines & Technology (January 2010)

- The materials for these hiring workshops continue to be disseminated at institutions across the U.S. In 2010, we distributed our brochures and/or hiring guidebooks to 44 institutions, including:

American University (’10)	Miami Dade College (’10)	University of Massachusetts-Boston (’10)
Boise State University (’09,’10)	Michigan Technological University (’10)	University of Medicine and Dentistry of New Jersey (’09,’10)
Brandeis University (’10)	Minnesota State Colleges (’10)	University of Michigan (’08,’10)
Bridgewater State University (’10)	North Carolina State University (’08,’09,’10)	University of Nebraska (’08,’09,’10)
Central European University (’10)	North Dakota State University (’09,’10)	University of Northern Colorado (’09,’10)
Danville Area Community College (IL) (’10)	Northwestern University (’08,’10)	University of Notre Dame (’10)
Delaware County Community College (PA) (’09,’10)	Ohio State University (’07,’09,’10)	University of Pennsylvania (’08,’10)
DePaul University (’10)	Richland Community College (IL) (’10)	University of Pittsburgh (’09,’10)
Edgewood College (’08,’10)	Rochester Institute of Technology (’09,’10)	University of Texas-Arlington (’10)
George Washington	South Dakota School of Mines	University of Texas-El Paso

University (’10)	& Technology (’10)	(’07,’10)
Harrisburg University of Science and Technology (’10)	Southern Methodist University (’10)	University of Virginia (’08, ’09,’10)
Harvard Medical School/ Children’s Hospital Boston (’07); Dana Farber Cancer Institute (’09); Mass General Hospital (’09); Brigham & Women’s Hospital (’10)	Stanford University (’10)	University of Wisconsin-Stout (’07,’08,’09,’10)
Harvey Mudd College (’10)	University of Alabama (’10)	University of Wisconsin-Superior (’10)
Hood College (’10)	University of California-Irvine (’10)	University of Wisconsin System (’08,’10)
Illinois Institute of Technology (’10)	University of Chicago (’07,’10)	Washington University in St. Louis (’07,’10)
Johns Hopkins University (’10)	University of Delaware (’09,’10)	Williams College (’10)
Loyola Marymount University (’07,’08,’10)	University of Illinois-Chicago (’07,’10)	Wright State University (’10)
Loyola University Chicago (’10)	University of Iowa (’07, ’08, ’09,’10)	Yale University (’08,’09,’10)

Ten additional organizations received our materials in 2010: (1) Association of Universities for Research in Astronomy (AURA); (2) Council of Colleges of Arts & Sciences; (3) Woods Hole Oceanic Institute; (4) RAND Corporation; (5) Lawrence Berkeley National Laboratory; (6) Dupont Corporation; (7) American Statistical Association; (8) Society for Industrial and Applied Mathematics; (9) American Chemical Society; and (10) American Geological Union.

- We distributed many brochures and guidebooks via campus visits and invited talks:
  - Eve Fine and Jennifer Sheridan distributed “Reviewing Applicants” brochures and “Searching for Excellence” guidebooks at the Greater Chicago Midwest Higher Education Recruitment Consortium (HERC) Symposium in Chicago, IL, where they were invited speakers (along with a team from the University of Illinois-Chicago. May 2010).
  - Molly Carnes distributed copies of each brochure (“Reviewing Applicants”, “Advice to the Top”, “Benefits and Challenges”, and “Enhancing Department Climate”) to hosts at Stanford University Medical School, where she was an invited speaker (October 2010).
  - Vicki Bier, former WISELI Leadership Team member, distributed copies of “Reviewing Applicants” to audience members at the Institute for Operations Research and the Management Sciences Annual Meeting in Austin, TX, where she was an invited panelist (November 2010).
  - Jennifer Sheridan distributed “Benefits and Challenges of Diversity” and “Enhancing Department Climate” brochures to the faculty at North Dakota State University, where she gave an invited talk (November 2010).

- In addition to distributing our printed documents, many universities use our digital materials:
    - 33 universities/organizations have taken our materials and added them directly into their own publications, websites, or presentations, and/or asked for permission to do so.
    - 12 universities have a link to our materials from their websites, and/or cite one of our publications.

Bias Literacy Workshops

- WISELI has been invited to present our *Bias Literacy* workshops at other institutions. We piloted these workshops in 2009 at the University of Virginia (March and October, 2009). In 2010, the American Statistical Association asked us to present the *Bias Literacy* workshop at their annual conference. We declined because we were still finalizing the workshop on our own campus.

Course Development

- WISELI Co-PI Molly Carnes continued to offer the seminar "Women and Leadership in Medicine, Science, and Engineering" in 2010. Dr. Carnes partnered with Dr. Carol Isaac to implement the course; 7 students participated in Spring 2010. The 2010 course syllabus has been the standard for courses that followed; very few changes made after spring 2010.

Publications & Presentations

- In 2010, WISELI-affiliated researchers published a wide variety of pieces:
    - 3 articles in peer-reviewed journals
    - 2 essays/commentaries
    - 1 peer-reviewed book chapter
    - 1 book
    - 1 book review

  See Section VIII for a detailed list of 2009 publications and presentations.
- In 2010, WISELI-affiliated researchers gave no peer-reviewed presentations of research, but did give several invited talks (11 outside of Madison, 6 in the Madison campus and community); see Section VIII for details.

Other Dissemination Activities

- **Special Workshop Presentation**. In June 2010, we created a special workshop for the American Women in Science group entitled "Advancing Ways of Awarding Recognition in Disciplinary Societies (AWARDS)". This workshop was a combination of the *Searching for Excellence & Diversity* workshop, and the *Bias Literacy* workshop.
- **Invited Talks.** WISELI-affiliated personnel gave at least 17 invited talks in 2010 on WISELI-related research and/or topics related to women in science. Most talks were invited by other universities, such as: North Dakota State University, University of Connecticut, University of Minnesota, and Stanford University. A full list is available in Section VIII.

- **Participation on advisory boards.** Molly Carnes serves on the Advisory Board for the ADVANCE programs at University of Illinois-Chicago, and also on the Brown University ADVANCE advisory board. She also serves on the advisory boards of the following projects: RAISE Project, "Achieving a Critical Mass of Women Biomedical Scientists" project, and Michigan State/Colorado-Boulder ADVANCE Evaluation project. Jennifer Sheridan serves on the advisory board for: the North Dakota State University ADVANCE: IT program; ADVANCE: PAID projects at Louisiana State University and AWIS (AWARDS project); the START-IT program at the University of Wisconsin-La Crosse; and the ADVANCE Portal Website. Amy Wendt serves as a reviewer for the Denice Denton Emerging Leaders Award/Anita Borg Institute.
- **Advice/materials to individuals.** Over 86 groups or institutions (including some of our fellow ADVANCE: IT institutions) contacted WISELI in 2010 for advice, to request materials, or for some other reason pertaining to institutional transformation. The most common reasons for contact include: requests for materials from a presentation or workshop we presented for their institution; information re: a specific WISELI program or effort (e.g., climate surveys, hiring workshops, climate workshops, Life Cycle Grants), administrative help for another ADVANCE institution, invitations to give a talk, general information useful for women in science, information about data collection, permission to use our materials, and more.

III. Changes at WISELI From 2009 to 2010

A. Initiatives

- **Hiring workshops.** Hiring workshops were back in "full swing" in 2010.
- **Climate workshops.** Climate workshops were on hiatus in 2010.
- **PI workshops.** No longer offering PI workshops.
- **Bias literacy workshops.** WISELI began implementing a new workshop for UW-Madison departments in 2010.
- **Website.** Continued to maintain and update the website in 2010.
- **Denice D. Denton Distinguished Lecture Series.** The fourth DDD Distinguished Lecture was given by Cora Marrett in November, 2010.
- **Exit Interview Study.** Instead of a single-year report, the Vice Provost requested a summary report for all exit interview data, 2006-2008 (attrition only).
- **Study of Faculty Worklife.** Implemented climate survey in spring of 2010. Included all clinical/CHS faculty for the first time.

B. Personnel

- **Directors.** No changes: Drs. Molly Carnes and Amy Wendt remain co-Directors of WISELI.
- **Staff.** Student hourly Brad Kerr and Project Assistant Jessica Winchell ended their employment with WISELI in Spring 2010.

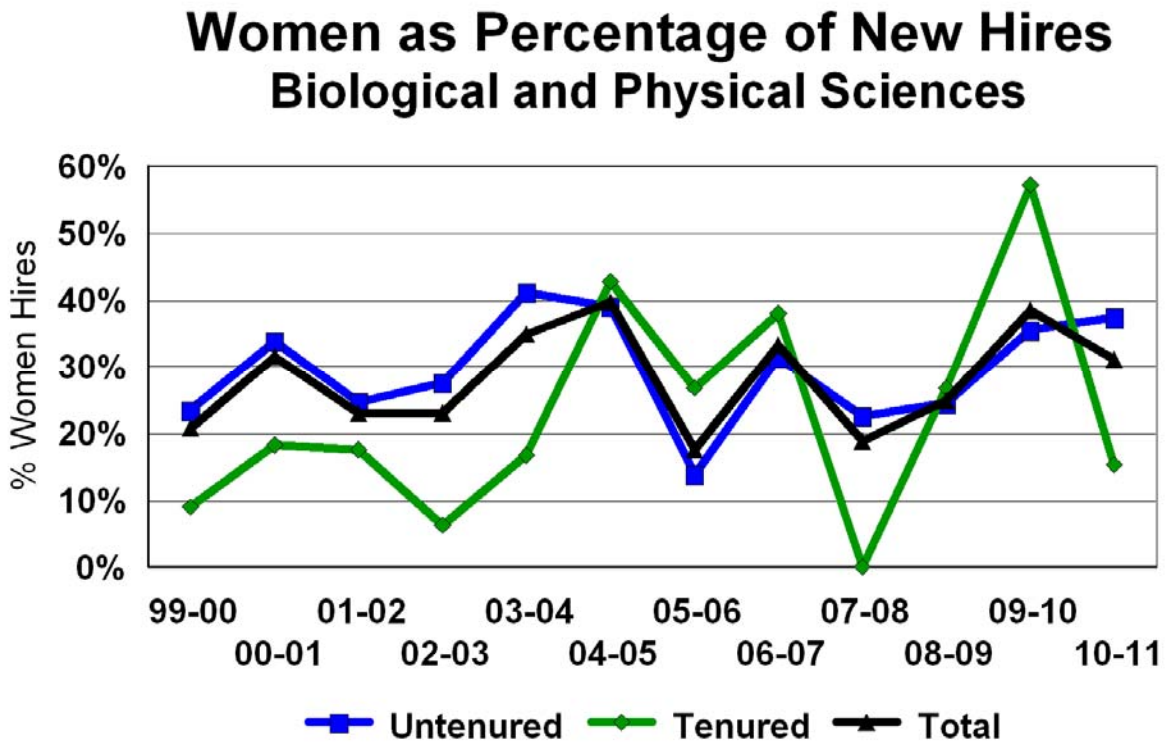
C. Funding Sources

- Molly Carnes submitted a proposal to NIH for the NIH Director's ARRA Funded Pathfinder award in May 2010. The proposal was entitled "Virtual Games for STEMM Faculty: Breaking the Bias Habit." This proposal was funded in late 2010. It will be run from Molly's UW Center for Women's Health Research, although WISELI will advise on content.
- Jennifer Sheridan and Eve Fine submitted a proposal to the NSF PAID program, entitled "Searching for Excellence & Diversity: Interactive Online Course for Faculty Search Committees" in November 2010. This proposal was not funded.

IV. Changes in Status of Women at UW-Madison from 2009 to 2010

A. Hiring

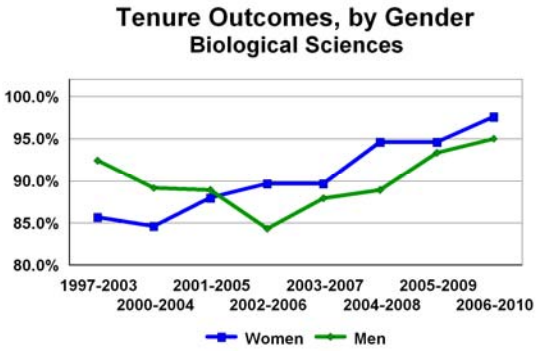
In 2010, hiring of women continued to remain fairly high. Overall, it was above 30%, although the hiring of senior women was under 20%.

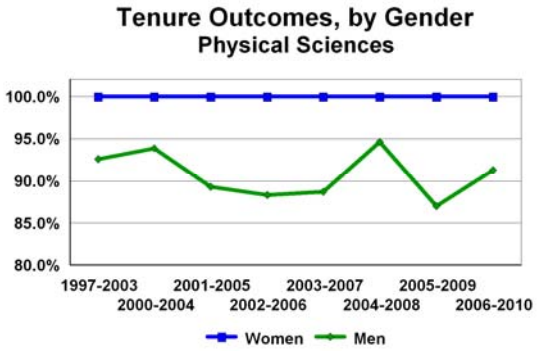


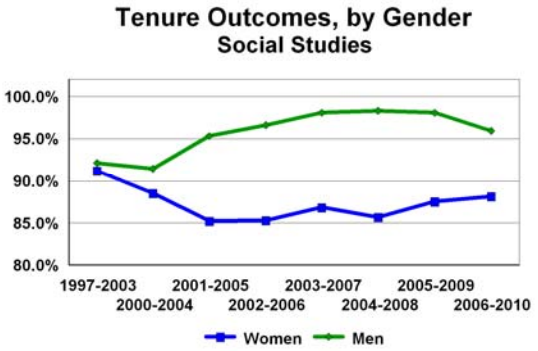
B. Tenure

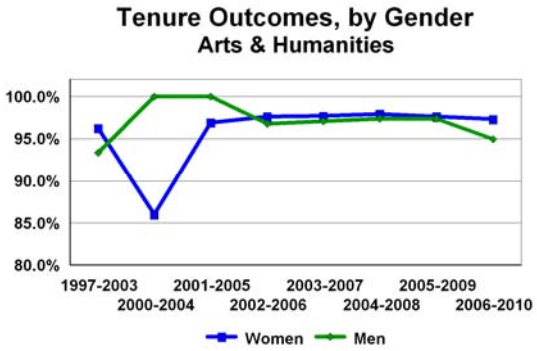
- Tenure rates by cohort have reached parity in the Biological Sciences and Arts & Humanities divisions, but not in the Social and Physical Science divisions. Rates for men in Physical Sciences continue to lag behind the 100% rates for women in 2010, while the rates for women in the Social Studies division continues to lag significantly

behind that for men. The Vice Provost for Faculty and Staff convened an ad hoc committee to examine the tenure process at UW-Madison, and worked with WISELI to collect climate survey data to investigate disparities in tenure rates more closely.



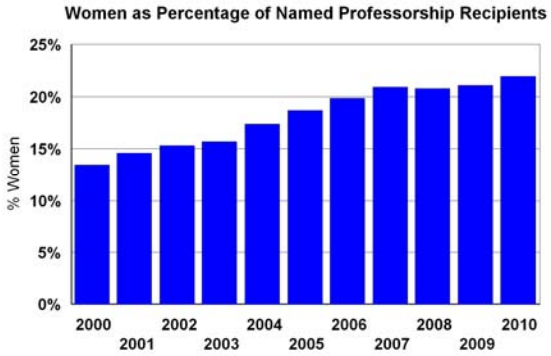


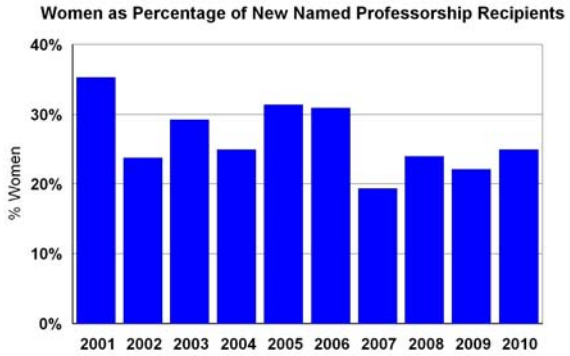


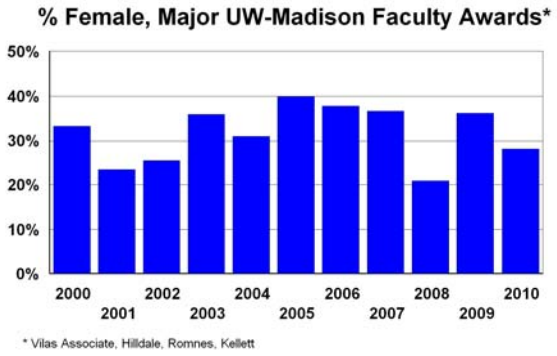


C. Awards and Honors

- The percentage of women earning a named professorship in 2010 is continuing to recover from the steep drop in 2007, but still has not returned to levels that existed a few years ago. The overall percentage of women with named professorships has crept slowly above 20% while the percentage of women earning major UW-Madison faculty awards remains near 30%.

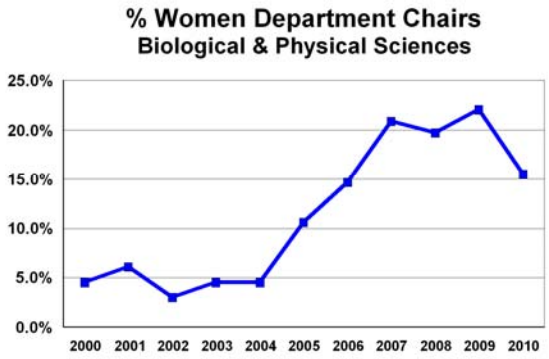


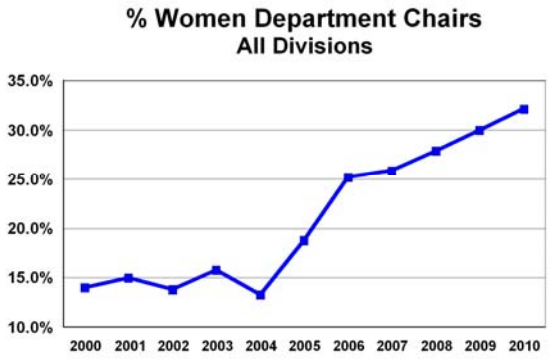




D. Leadership

- The numbers and percentages of women department chairs in STEM dropped in 2010, back down to around 15%; however, the percentage across the entire campus continues to rise.





V. WISELI Management and Infrastructure

A. Funding Sources

- **Grants.**
  - The NSF PAID award ended in Spring 2010.
  - Dr. Amy Wendt was awarded an NSF ITEST grant in 2010. This grant does not run through WISELI.
  - Dr. Molly Carnes was awarded an R01 through the NIH in October 2009. This grant funds 15% of Dr. Sheridan's salary, and 15% of Dr. Carnes's salary, through 2013.
  - We applied for a new NSF ADVANCE PAID grant in 2010 that would have funded the creation of an interactive online course for faculty hiring committees. That grant was not funded.
  - Dr. Molly Carnes was awarded an "NIH Pathfinder" grant in 2010. This grant does not run through WISELI.

- **Campus Support.**
  - The Office of the Provost is providing a large amount of funds to the WISELI program. Funds provide support for 85% of Jennifer Sheridan's salary, and some or all of Eve Fine's salary (15% through May 2010 when the PAID grant ended; 100% after). The $55,000 provided by campus in support of the NSF PAID grant ended in 2009, and thus support for Brad Kerr and Jessica Winchell ended in May 2010.
  - The School of Medicine and Public Health provides $70,000, renewable annually. These funds are used to pay the salary of Christine Pribbenow, Eve Fine, and Molly Carnes. $2,000 of the funds are used to support the *Celebrating Women in S&E* grant program.
  - The College of Engineering is providing $5,000 annually, as well as providing WISELI with excellent space in the newly-remodeled Mechanical Engineering Building. These funds are used to pay for supplies and travel for WISELI employees, and $2,000 is set aside for the *Celebrating Women in S&E* grant program.
  - The Nelson Institute for Environmental Studies provided $500 towards the *Celebrating Women in S&E* grant program.
  - The Vilas Trust is providing $300,000 for *Vilas Life Cycle Professorships*.

- **Income-Generating Activities.**
  - Sales of our brochures and guidebooks, and presentation of our hiring workshops to outside universities, have generated over $28,000 in additional income for WISELI in 2010.

B. Personnel

Co-Directors: Molly Carnes and Amy Wendt
Executive & Research Director: Jennifer Sheridan
Evaluation Director: Christine Maidl Pribbenow
Researcher: Eve Fine
Project Assistant: Jessica Winchell (Jan.-May)
Student Assistant: Brad Kerr (Jan.-May)

VI. Financial Report

2010 Financial Report

	Account						Total
	101 190240-4	144-PW16 190240-4	150-E874 190240-4	233-JM60 190240-4	136 190240-4	144-PRJ27YH 190240-4	
Income							
NIH						$295,491	$295,491
NSF							$0
College of Engineering	$5,000						$5,000
Office of the Provost	$80,000						$80,000
School of Medicine & Public Health*							$0
College of Agriculture & Life Sciences							$0
School of Veterinary Medicine							$0
College of Letters & Sciences							$0
School of Pharmacy							$0
Nelson Institute	$500						$500
Foundation Fund							$0
Income Generating Activities					$28,819		$28,819
Carryover from 2009	$18,589	$60,971	$71,382	$4,119	$66,371	$227,994	$449,426
Expenditures							
Salaries							
Faculty Directors	$12,531	$11,034				$31,032	$54,597
WISELI Staff	$93,330	$18,381				$8,774	$120,485
Evaluation Staff	$24,566						$24,566
Bias Literacy Project Staff						$110,544	
Fringe Benefits		$10,897				$52,681	$63,578
Tuition Remission	$2,044	$2,400				$11,311	$15,755
Travel	$29	-$132	$2,825				$2,722
Supplies and Equipment	$3,200		$671				$3,871
Initiatives							
Celebrating Grants	$10,370	-$128	$181				$10,423
Vilas Life Cycle Professorships	$10,000		$9		$8,759		$18,768
Research & Evaluation Expenses	$1,143		$10,076		$4,000	$7,654	$22,873
Library	$238		$79				$317
Denice D. Denton Distinguished Lecture Series			$198	$3,569			$3,767
Professional Development Activities for Faculty, Staff & Students	$199	-$199	$199				$199
Workshop Expenses	$127	-$23	$1,055				$1,159
Brochures, Booklets, & Other Publications	$2,576				$2,541		$5,117
Dissemination Activities	$670				$4,274		$4,944
Overhead		$18,720				$102,183	$120,903
Total Income	$104,089	$60,971	$71,382	$4,119	$95,190	$523,485	$859,235
Total Expenditures	$161,023	$60,950	$15,293	$3,569	$19,573	$324,179	$584,587
Remaining Funds	-$56,934	$21	$56,089	$550	$75,616	$199,305	$274,647

* Did not provide contribution in calendar year 2010; two contributions will be provided in calendar year 2011.

VII. Expected WISELI Directions for 2011

A. Initiatives

- *Retaining and Advancing Excellent Faculty Through Bias Literacy* workshops will continue to be implemented in experimental departments.
- *Searching for Excellence & Diversity* hiring workshops, *Vilas Life Cycle Professorships*, and *Celebrating Women* grants will continue as in the past.
- *Enhancing Department Climate: A Chair's Role* climate workshops will be suspended, while development and implementation of the new *Breaking the Prejudice Habit Through Bias Literacy* workshops begins.
- *Running a Great Lab* PI workshops are discontinued.
- WISELI will severely limit our *Implementing Training for Hiring Committees* external workshops due to the new *Bias Literacy* workshop development.
- Analysis of *Study of Faculty Worklife* survey data will continue.
- Continued monitoring of institutional data.
- Discontinuing of *Faculty Attrition Study*.
- Development of bias literacy video games will commence, with Molly Carnes's Pathfinder award.

B. Personnel

- Due to the lack of research assistance, we plan to hire a new employee to assist with climate survey data analysis and evaluation data collection and reporting. This new hire will be funded 50% with income-generating funds (136), and 50% from the NIH Pathfinder award. A search will commence in early 2011.

C. Funding

- Funding sources are becoming depleted, but are adequate to support current WISELI staff and programming (including a survey in 2013), and also the new employee, through 2013 or 2014.

VIII. WISELI Publications and Presentations, 2010

Papers Published:

Schmid, Sandra L.; Molly Carnes; Ursula Goodenough; Nancy Hopkins; Phoebe LeBoy; Sandra Masur; and Virginia Valian. 2010. "A Richer and More Diverse Future for Cell Biology." ASCB 50th Anniversary Essay. *Molecular Biology of the Cell*. 21(22): 3821-3822.

Ford, Cecilia. "Questioning in Meetings: Participation and Positioning." 2010. In *Why Do You Ask? The Function of Questions in Institutional Discourse* (Susan Erlich and Alice Freed, Eds.) New York, NY: Oxford University Press.

Crone, Wendy. 2010. *Survive and Thrive: A Guide for Untenured Faculty*. San Rafael, CA: Morgan & Claypool Publishers.

Fine, Eve. 2010. "Book Review: Is Biology Still Destiny? Recent Studies of Sex and Gender Differences." *Feminist Collections*. 31(3): 1-7. Madison, WI: University of Wisconsin System.

Sheridan, Jennifer; Eve Fine; Christine Maidl Pribbenow; Jo Handelsman; Molly Carnes. 2010. "Searching for Excellence & Diversity: Increasing the Hiring of Women Faculty at One Academic Medical Center." *Academic Medicine*. 85(6):999-1007.

Isaac, Carol; Griffin, L; and Molly Carnes. 2010. "A Qualitative Study of Faculty Members' Views of Women Chairs." *Journal of Women's Health*. 19(3):533-46. **PMID: 20156081.**

Carnes, Molly. 2010. "Commentary: Deconstructing Gender Difference." *Academic Medicine*. 85(4):575-577. **PMID: 20354367.**

Pribbenow, Christine Maidl; Jennifer Sheridan; Jessica Winchell; Deveny Benting; Jo Handelsman; and Molly Carnes. 2010. "The Tenure Process and Extending the Tenure Clock: The Experience of Faculty at One University." *Higher Education Policy*. 23:17-38.

Working Papers:

Sheridan, Jennifer; Jo Handelsman; Amy Wendt; and Molly Carnes. 2007. "ADVANCE at the University of Wisconsin-Madison: Progress Towards Transforming the College of Engineering." Working paper.

Pribbenow, Christine Maidl; Jennifer Sheridan; Molly Carnes; Eve Fine; and Jo Handelsman. "Departmental Climate: Differing Perceptions by Faculty Members and Chairs." *The Journal of Women and Minorities in Science and Engineering*. [draft accepted and under revision.]

Dissertations:

O'Connell, Kathleen A. 2010. "Academic Change and Innovation: Obstacles and strategies for Overcoming Barriers. Major Barriers and Strategies for Overcoming Them in Initiating and Implementing Organizational Change: The Case of the University of Wisconsin-Madison Women in Science and Engineering Leadership Institute (WISELI)." Doctoral Dissertation: University of Wisconsin-Madison.

Presentations:

Sheridan, Jennifer. November 29, 2010. "Enhancing Department Climate: A Chair's Role." Invited speaker, North Dakota State University. Fargo, ND.

Carnes, Molly. November 17, 2010. "Gender Stereotypes and Academic Careers: What You Don't Know Can Hurt You." University of Connecticut Medical and Dental School. Farmington, CT.

Carnes, Molly. November 16, 2010. "The Importance of Bias Literacy in Achieving Diversity in STEMM." University of Connecticut Storrs Campus. Storrs, CT.

Carnes, Molly. November 6-7, 2010. "Exploring Unconscious Bias." Invited speaker, AAMC Annual Meeting. Washington, DC.

Bier, Vicki. November 8, 2010. "Excellence and Diversity in Academia." Invited panelist. Institute for Operations Research and the Management Sciences Annual Meeting. Austin, TX.

Carnes, Molly. October 28, 2010. "What You Don't Know Can Hurt You: Gender Stereotypes and Academic Career Advancement." Medical Grand Rounds. University of Minnesota Medical School. Minneapolis, MN.

Carnes, Molly. October 22, 2010. "The Need for Bias Literacy to Advance Diversity." Invited 2010 Distinguished Lecturer. Stanford University. Stanford, CA.

Carnes, Molly. October 21, 2010. "Achieving Gender Equity in Academic Medicine: A Lot Harder Than We Thought." Invited 2010 Distinguished Lecturer. Stanford University. Stanford, CA.

Carnes, Molly. October 20, 2010. "Gender Equity in Academic Medicine: Time for Institutional Change." Invited 2010 Distinguished Lecturer. Stanford University. Stanford, CA.

Carnes, Molly. September 23, 2010. "The Effects of Bias on Faculty Careers." Invited panelist, "Alfred P. Sloan Projects for Faculty Career Flexibility Invitational Conference for Medical School Deans." University of Illinois-Chicago. Chicago, IL.

Fine, Eve; Cynthia Jameson; Constantine Megaridis; and Jennifer Sheridan. May 21, 2010. "Two Models of Faculty Search Committee Education: University of Illinois at Chicago (UIC) and the University of Wisconsin-Madison." Invited speakers, "Best

Practices in Diversity Recruitment and Retention of Faculty and Staff." Greater Chicago Midwest Higher Education Recruitment Consortium (HERC) Symposium. Chicago, IL.

Sheridan, Jennifer. April 8, 2010. "Departmental Climate at UW-Madison: Measurement, Action, and Change." Invited speaker, Science and Technology Studies Brownbag Seminar. Madison, WI.

Handelsman, Jo. March 25, 2010. "Lessons Learned at UW: A Small Band of Dedicated People Can Make a Difference." Keynote Speaker, Luncheon in Honor of Jo Handelsman. Madison, WI.

Carnes, Molly. March 4, 2010. "Gender Equity in Academic Medicine." Invited Speaker, "Changing the Face of Medicine" Lecture Series. Madison, WI.

Sheridan, Jennifer. March 3, 2010. "Unconscious Biases and Assumptions: The Origins of Discrimination?" Invited speaker, Participatory Learning and Teaching Organization (PLATO) Seminar. Madison, WI.

Sheridan, Jennifer and Patricia Devine. February 16, 2010. "Unconscious Bias in Teaching." Panelists. Women Faculty Mentoring Program brownbag. University of Wisconsin-Madison. Madison, WI.

Carnes, Molly. January 8, 2010. "Gender Equity as Institutional Change." Department of Medicine Grand Rounds. Madison, WI.

Campus Visits/Dissemination of Programming:

"Advancing Ways of Awarding Recognition in Disciplinary Societies (AWARDS) Workshop." June 23-24, 2010. American Women in Science (AWIS). Washington, DC.

"Searching for Excellence & Diversity" workshop and "Implementing Workships for Search Committees" workshop. January 7, 2010. South Dakota School of Mines & Technology. Rapid City, SD. (Also in attendance were participants from Northern State University, South Dakota State University, and North Dakota State University.)

WISELI in the Press:

"Reducing the Impact of Negative Stereotypes on the Careers of Minority and Women Scientists." Daisy Grewal. *Science Careers*. October 26, 2010. http://sciencecareers.sciencemag.org/career_magazine/previous_issues/articles/2010_11_26/caredit.a1000113#box .

"$2 Million Grant to Develop Game That Breaks Bias Against Women In Sciences." Simon Parkin. *Gamasutra*. October 13, 2010. http://www.gamasutra.com/view/news/30944/2_Million_Grant_To_Develop_Game_That_Breaks_Bias_Against_Women_In_Sciences.php .

"UW Researcher Gets Grant to Study Faculty Bias." Anna Assendorf. *The Badger Herald*. October 11, 2010.

http://badgerherald.com/news/2010/10/11/uw_researcher_gets_g.php?sms_ss=email&at_xt=4cb4872191b56e7e,0 .

"Major Grant Aims at Breaking the Habit of Implicit Bias." University of Wisconsin-Madison Communications. October 11, 2010. http://www.news.wisc.edu/18509 .

"Barriers to Women's Advancement in the Sciences." Blog entry for the Institute for Women's Health Research at Northwestern University. July 19, 2010. http://blog.womenshealth.northwestern.edu/2010/07/barriers-to-womens-advancement-in-science/ .

"Making Visible the Invisible." *Focus* Newsletter. Burroughs Wellcome Fund. July, 2010. http://www.bwfund.org/pages/458/FEATURE-Women-in-Science-part-four/ .

"Strengthening Scientific Leadership for the Future." *UMOJA Magazine*. March, 2010.

"How Dishwashing Works Against Tenure." *The Chronicle of Higher Education*. January 20, 2010. http://chronicle.com/blogPost/How-Dishwashing-Works-Against/20574/ .

"Time Crunch for Female Scientists: They Do More Housework Than Men." *The Chronicle of Higher Education*. January 19, 2010. http://chronicle.com/article/Female-Scientists-Do-More/63641/ .

"Dr. Molly Carnes: Helping Women Advance in Science and Medicine." Kathryn Kingsbury. *Wisconsin Woman Magazine*. January 2010: 6-8. http://issuu.com/ogarapublishing/docs/wwjan2010 .

Products Available to the Public:

Brochures/Booklets:

Sheridan, Jennifer; Eve Fine; and Jo Handelsman. 2010. "Fostering Success for Women in Science & Engineering: Advice for Departmental Faculty."

Fine, Eve and Jo Handelsman. 2010. "Benefits and Challenges of Diversity."

Surveys:

Sheridan, Jennifer; Christine Maidl Pribbenow; Molly Carnes; and Amy Wendt. January 2010. "Study of Faculty Worklife at the University of Wisconsin-Madison, 2010." Climate survey instrument.

Reports to Funding Agencies:

Carnes, Molly. June 28, 2010. Advancement of Women in STEMM: A Multi-Level Research and Action Project. Annual Report, 2010.

Grant Proposals in Support of WISELI:

NSF Partnerships for Adaptation, Implementation, and Dissemination (PAID) program. "Searching for Excellence & Diversity: Interactive Online Course for Faculty Search Committees." PI: Jennifer Sheridan. Co-PI: Eve Fine. Submitted November 5, 2010. Not Funded.

NIH Director's ARA Funded Pathfinder Award to Promote Diversity in the Scientific Workforce. "Virtual Games for STEMM Faculty: Breaking the Bias Habit." PI: Molly Carnes. Submitted May 4, 2010. Funded.

Evaluation Reports:

Pribbenow, Christine Maidl. October 25, 2010. "Study of Faculty Attrition at UW-Madison: Combined Results, 2006-2008."

Kerr, Bradley, Jessica Winchell, and Christine Pribbenow. October 11, 2010. "WISELI's Celebrating Women in Science & Engineering Grant Program: Evaluation Report, 2002-2009."

Pribbenow, Christine Maidl and Jennifer Sheridan. April 10, 2010. "Evaluation of the Vilas Life Cycle Professorship Program.

ADVANCE-Related Service

Carnes, Molly. Member, Expert Advisory Panel. "How Do Organizational Change Strategies Support the Success of Women Scholars in STEM Fields? An Analysis of NSF ADVANCE Projects." Michigan State University and University of Colorado-Boulder. 2010-Present.

Carnes, Molly. Advisory Board Member, "Achieving a Critical mass of Women Biomedical Scientists: Impact of 3 US Programs" project. University of New Mexico. 2010.

Sheridan, Jennifer. External Advisory Board Member, ADVANCE: PAID Project. Louisiana Tech University. 2009-Present.

Sheridan, Jennifer. Advisory Committee Member, AWARDS Project. American Women in Science/RAISE Project. 2009-Present.

Wendt, Amy. External Reviewer, Denice Denton Emerging Leaders Award. Anita Borg Institute for Women and Technology. http://anitaborg.org/initiatives/awards/denice-denton-award/ . 2009-Present.

Sheridan, Jennifer. External Advisor, North Dakota State University ADVANCE Institutional Transformation project. 2009-2013.

Sheridan, Jennifer. Advisory Committee Member, ADVANCE Portal Website. 2008-Present.

Sheridan, Jennifer. Advisory Board Member, University of Wisconsin-La Crosse ADVANCE START project. 2008-Present.

Carnes, Molly. Advisory Board Member, RAISE Project. 2007-Present.

Carnes, Molly. External Advisor, University of Illinois-Chicago ADVANCE Institutional Transformation project, "Women in Science & Engineering System Transformation (WISEST)". 2006-2010.

Carnes, Molly. External Advisor, Brown University ADVANCE Institutional Transformation project. 2007-2010.

Presentations of WISELI Activities to Campus Groups

CALS Department Chairs/Deans—2/22/2010

SMPH Combined Chairs—11/22/2010

Faculty meetings in STEMM departments—

2010: Civil & Environmental Engineering, Biomedical Engineering, Engineering Physics, Industrial & Systems Engineering, Mechanical Engineering, Anthropology, Economics, Physics, Sociology, Computer Sciences, Communication Arts, Botany, Statistics, Afro-American Studies, Atmospheric & Oceanic Sciences, LaFollette School of Public Affairs, Social Work, Mathematics, Psychology, Journalism/Mass Communication, Zoology, Geology & Geophysics, Urban & Regional Planning, Political Science, Astronomy, Chemistry, Communicative Disorders, Agronomy, Landscape Architecture, Food Science, Bacteriology, Life Sciences Communication, Entomology, Biochemistry, Dairy Science, Animal Science, Soil Science, Forest & Wildlife Ecology, Agricultural & Applied Economics, Horticulture, Plant Pathology, Nutritional Sciences, Biological Systems Engineering, Emergency Medicine, General Internal Medicine, Geriatrics, Biomolecular Chemistry, Family Medicine, Pathology & Laboratory Medicine, Neurological Surgery, Anesthesiology, Population Health Sciences, Rheumatology, Ophthalmology & Visual Sciences, Allergy & Pulmonary, Infectious Disease, Medical Physics, Pediatrics, Neurology, Radiology, Gastroenterology, Medical Microbiology, Nephrology, Psychiatry, Urology, Physiology, Orthopedics, Physical Therapy Program Pharmacology, Rehabilitative Medicine, Pharmacy Practice & Extension, Pharmacy Social & Administrative Sciences, Pharmacy Extension Services, Pharmaceutical Sciences, Medical Sciences, Comparative Biosciences.

Institutional Data, 2010

Table 1. Number and Percent of Women Faculty in Science/Engineering by Department, 2010

Division/Department	Women	Men	% Women
Physical Sciences	**65.00**	**382.20**	**14.5%**
Biological Systems Engineering	2.00	12.25	14.0%
Soil Science	3.50	12.55	21.8%
Chemical & Biological Engineering	2.00	17.00	10.5%
Civil & Environmental Engineering	3.50	21.75	13.9%
Electrical & Computer Engineering	5.00	33.50	13.0%
Biomedical Engineering	5.00	6.90	42.0%
Industrial & Systems Engineering	4.50	12.00	27.3%
Mechanical Engineering	3.00	30.75	8.9%
Materials Science & Engineering	3.00	10.00	23.1%
Engineering Physics	1.25	20.50	5.7%
Engineering Professional Development	0.00	6.00	0.0%
Astronomy	3.75	8.00	31.9%
Chemistry	4.50	34.00	11.7%
Computer Sciences	6.00	31.00	16.2%
Geoscience	4.00	17.00	19.0%
Mathematics	2.25	42.00	5.1%
Atmospheric & Oceanic Sciences	2.00	12.00	14.3%
Physics	6.25	43.00	12.7%
Statistics	3.50	12.00	22.6%
Biological Sciences	**200.05**	**555.75**	**26.5%**
Agronomy	2.50	15.00	14.3%
Animal Science	2.00	14.60	12.0%
Bacteriology	6.00	12.00	33.3%
Biochemistry	6.50	26.00	20.0%
Dairy Science	1.00	10.40	8.8%
Entomology	3.00	9.00	25.0%
Food Science	1.00	9.00	10.0%
Genetics	3.50	11.67	23.1%
Horticulture	3.00	9.50	24.0%
Nutritional Sciences	5.00	6.50	43.5%
Plant Pathology	6.00	7.00	46.2%
Forest & Wildlife Ecology	2.50	17.50	12.5%
Kinesiology	8.00	7.00	53.3%
Nelson Institute for Environmental Studies	3.50	5.75	37.8%
Botany	6.50	8.50	43.3%
Communicative Disorders	10.00	4.00	71.4%
Zoology	7.00	14.00	33.3%
Anatomy	5.00	11.00	31.3%
Anesthesiology	0.00	6.50	0.0%
Biostatistics & Medical Informatics	2.75	13.00	17.5%
Family Medicine	2.00	5.55	26.5%
Genetics	2.00	6.93	22.4%
Obstetrics & Gynecology	4.00	8.00	33.3%

Medical History & Bioethics	3.50	5.90	37.2%
Human Oncology	1.00	9.25	9.8%
Medicine	15.50	46.15	25.1%
Dermatology	0.00	7.00	0.0%
Medical Microbiology	5.20	8.00	39.4%
Medical Physics	2.00	16.95	10.6%
Neurology	3.00	8.50	26.1%
Neurological Surgery	2.00	7.00	22.2%
Oncology	6.50	11.90	35.3%
Ophthalmology & Visual Sciences	4.50	12.00	27.3%
Orthopedics & Rehabilitation	1.00	8.50	10.5%
Pathology & Laboratory Medicine	5.00	14.00	26.3%
Pediatrics	10.50	11.20	48.4%
Pharmacology	3.00	7.00	30.0%
Biomolecular Chemistry	2.80	7.75	26.5%
Physiology	5.00	13.00	27.8%
Population Health Sciences	9.30	11.00	45.8%
Psychiatry	5.00	9.10	35.5%
Radiology	1.00	16.15	5.8%
Surgery	2.00	19.00	9.5%
Urology	0.00	5.00	0.0%
School of Pharmacy	6.50	25.00	20.6%
Medical Sciences	4.00	7.00	36.4%
Pathobiological Sciences	2.00	17.00	10.5%
Comparative Biosciences	6.00	10.00	37.5%
Surgical Sciences	1.00	4.00	20.0%
Social Studies	**237.70**	**333.22**	**41.6%**
Agricultural & Applied Economics	3.00	15.90	15.9%
Life Sciences Communication	5.00	3.00	62.5%
Community & Environmental Sociology	5.00	7.00	41.7%
Natural Resources-Landscape Architecture	4.00	3.00	57.1%
Urban & Regional Planning	1.00	3.00	25.0%
School of Business	15.75	59.67	20.9%
Counseling Psychology	4.00	4.00	50.0%
Curriculum & Instruction	16.25	13.15	55.3%
Educational Leadership & Policy Analysis	4.00	12.00	25.0%
Educational Policy Studies	5.00	6.00	45.5%
Educational Psychology	7.00	11.00	38.9%
Rehabilitation Psychology & Special Education	6.00	6.00	50.0%
School of Human Ecology	24.00	13.00	64.9%
Law School	15.50	19.25	44.6%
Anthropology	10.00	10.00	50.0%
Afro-American Studies	6.50	2.25	74.3%
Communication Arts	11.00	11.00	50.0%
Economics	4.20	28.33	12.9%
Ethnic Studies	0.50	0.00	100.0%
Geography	4.00	11.00	26.7%
LaFollette School of Public Affairs	4.00	9.25	30.2%
School of Journalism & Mass Communication	6.00	9.50	38.7%
School of Library & Information Studies	6.00	2.50	70.6%

	Political Science	8.00	23.75	25.2%
	Psychology	17.00	15.00	53.1%
	Social Work	9.50	5.00	65.5%
	Sociology	14.00	22.92	37.9%
	Urban & Regional Planning	0.00	4.75	0.0%
	School of Nursing	19.50	0.00	100.0%
	Professional Development & Applied Studies	2.00	2.00	50.0%
Humanities		**160.25**	**195.23**	**45.1%**
	Art	9.00	18.00	33.3%
	Dance	4.00	3.00	57.1%
	African Languages & Literature	2.00	4.50	30.8%
	Art History	10.00	4.75	67.8%
	Classics	2.00	5.00	28.6%
	Comparative Literature	1.00	2.25	30.8%
	East Asian Languages & Literature	7.00	6.00	53.8%
	English	27.20	21.30	56.1%
	French & Italian	9.00	10.25	46.8%
	German	5.00	8.35	37.5%
	Hebrew & Semitic Studies	1.00	4.00	20.0%
	History	18.00	26.00	40.9%
	History of Science	2.00	4.50	30.8%
	Linguistics	3.00	2.00	60.0%
	School of Music	14.50	31.00	31.9%
	Philosophy	3.00	13.00	18.8%
	Scandinavian Studies	4.00	2.00	66.7%
	Slavic Languages	4.00	5.00	44.4%
	Languages & Cultures of Asia	6.00	4.33	58.1%
	Spanish & Portuguese	10.00	14.00	41.7%
	Theatre & Drama	7.75	5.00	60.8%
	Gender & Women's Studies	7.00	0.00	100.0%
	Social Sciences	0.00	1.00	0.0%
	Liberal Studies & the Arts	3.80	0.00	100.0%

SOURCE: October 2010 IADS Frozen slice

NOTES: Faculty are assigned to discipline based on tenure home departments using the the classification system developed for the Women in Science and Engineering Leadership Institute (WISELI). An individual tenured in more than one department is shown based on the tenure split. Thus, a person who is 50% statistics and 50% plant pathology is shown as .5 FTE in Physical Sciences and .5 FTE in Biological Sciences. Faculty with zero-dollar appointments and faculty who are paid wholly through an administrative appointment (such as dean or chancellor) are excluded from the salary median and salary FTE calculations. Years are calculated based on current faculty appointment. (Some individuals have held appointments at UW Madison prior to the current appointment. The years in the prior appointment are not included in this calculation.)

Prepared by : Margaret Harrigan, Office of Academic Planning and Analysis

Table 2. Number and Percent of Women Faculty in Science/Engineering by Rank and Department, 2010

Division/Department	Women			Men			% Women		
	Full	Associate	Assistant	Full	Associate	Assistant	Full	Associate	Assistant
Physical Sciences	**30.00**	**17.50**	**17.50**	**251.30**	**65.90**	**65.00**	**10.7%**	**21.0%**	**21.2%**
Biological Systems Engineering	0.00	1.00	1.00	8.25	1.00	3.00	0.0%	50.0%	25.0%
Soil Science	0.00	3.50	0.00	8.55	2.00	2.00	0.0%	63.6%	0.0%
Chemical & Biological Engineering	1.00	0.00	1.00	11.00	5.00	1.00	8.3%	0.0%	50.0%
Civil & Environmental Engineering	1.00	0.50	2.00	16.75	3.00	2.00	5.6%	14.3%	50.0%
Electrical & Computer Engineering	2.00	2.00	1.00	24.50	6.00	3.00	7.5%	25.0%	25.0%
Biomedical Engineering	0.00	3.00	2.00	3.50	3.40	0.00	0.0%	46.9%	100.0%
Industrial & Systems Engineering	3.50	0.00	1.00	4.00	6.00	2.00	46.7%	0.0%	33.3%
Mechanical Engineering	2.00	1.00	0.00	16.75	7.00	7.00	10.7%	12.5%	0.0%
Materials Science & Engineering	1.00	2.00	0.00	4.00	4.00	2.00	20.0%	33.3%	0.0%
Engineering Physics	1.25	0.00	0.00	15.50	3.00	2.00	7.5%	0.0%	0.0%
Engineering Professional Development	0.00	0.00	0.00	4.00	1.00	1.00	0.0%	0.0%	0.0%
Astronomy	1.75	0.00	2.00	5.00	0.00	3.00	25.9%	N/A	40.0%
Chemistry	2.50	1.00	1.00	25.00	2.00	7.00	9.1%	33.3%	12.5%
Computer Sciences	3.00	1.00	2.00	18.00	4.00	9.00	14.3%	20.0%	18.2%
Geoscience	4.00	0.00	0.00	12.00	2.00	3.00	25.0%	0.0%	0.0%
Mathematics	1.75	0.50	0.00	27.25	5.00	9.75	6.0%	9.1%	0.0%
Atmospheric & Oceanic Sciences	0.00	0.00	2.00	8.00	1.00	3.00	0.0%	0.0%	40.0%
Physics	3.25	1.00	2.00	31.00	9.00	3.00	9.5%	10.0%	40.0%
Statistics	2.00	1.00	0.50	8.25	1.50	2.25	19.5%	40.0%	18.2%
Biological Sciences	**85.55**	**58.00**	**56.50**	**341.35**	**119.60**	**94.80**	**20.0%**	**32.7%**	**37.3%**
Agronomy	0.50	1.00	1.00	8.00	4.00	3.00	5.9%	20.0%	25.0%
Animal Science	0.00	0.00	2.00	9.60	2.00	3.00	0.0%	0.0%	40.0%
Bacteriology	4.50	1.50	0.00	8.00	4.00	0.00	36.0%	27.3%	N/A
Biochemistry	6.00	0.50	0.00	22.00	1.00	3.00	21.4%	33.3%	0.0%
Dairy Science	1.00	0.00	0.00	6.40	3.00	1.00	13.5%	0.0%	0.0%
Entomology	1.00	2.00	0.00	6.00	2.00	1.00	14.3%	50.0%	0.0%
Food Science	1.00	0.00	0.00	7.00	1.00	1.00	12.5%	0.0%	0.0%
Genetics	0.50	1.00	2.00	11.17	0.50	0.00	4.3%	66.7%	100.0%
Horticulture	0.00	2.00	1.00	6.50	3.00	0.00	0.0%	40.0%	100.0%
Nutritional Sciences	3.00	2.00	0.00	4.50	1.00	1.00	40.0%	66.7%	0.0%
Plant Pathology	3.00	1.00	2.00	5.00	0.00	2.00	37.5%	100.0%	50.0%
Forest & Wildlife Ecology	0.50	0.00	2.00	10.00	5.00	2.50	4.8%	0.0%	44.4%
Kinesiology	3.00	4.00	1.00	1.00	3.00	3.00	75.0%	57.1%	25.0%
Nelson Institute for Environmental Studies	1.50	1.00	1.00	4.25	0.00	1.50	26.1%	100.0%	40.0%
Botany	3.00	2.00	1.50	8.00	0.50	0.00	27.3%	80.0%	100.0%
Communicative Disorders	4.00	3.00	3.00	4.00	0.00	0.00	50.0%	100.0%	100.0%
Zoology	2.00	4.00	1.00	7.00	4.00	3.00	22.2%	50.0%	25.0%
Anatomy	3.00	2.00	0.00	8.00	2.00	1.00	27.3%	50.0%	0.0%
Anesthesiology	0.00	0.00	0.00	4.50	2.00	0.00	0.0%	0.0%	N/A
Biostatistics & Medical Informatics	1.25	1.50	0.00	6.75	1.00	5.25	15.6%	60.0%	0.0%

Family Medicine	1.00	1.00	0.00	1.75	2.00	1.80	36.4%	33.3%	0.0%
Genetics	0.00	1.00	1.00	2.43	1.50	3.00	0.0%	40.0%	25.0%
Obstetrics & Gynecology	1.00	2.00	1.00	5.00	3.00	0.00	16.7%	40.0%	100.0%
Medical History & Bioethics	2.00	0.50	1.00	1.90	2.00	2.00	51.3%	20.0%	33.3%
Human Oncology	0.00	1.00	0.00	7.05	0.20	2.00	0.0%	83.3%	0.0%
Medicine	2.50	1.00	12.00	20.40	17.75	8.00	10.9%	5.3%	60.0%
Dermatology	0.00	0.00	0.00	5.00	2.00	0.00	0.0%	0.0%	N/A
Medical Microbiology	3.00	2.20	0.00	7.00	1.00	0.00	30.0%	68.8%	N/A
Medical Physics	1.00	0.00	1.00	7.90	6.05	3.00	11.2%	0.0%	25.0%
Neurology	1.00	0.00	2.00	5.50	0.00	3.00	15.4%	N/A	40.0%
Neurological Surgery	1.00	0.00	1.00	2.00	2.00	3.00	33.3%	0.0%	25.0%
Oncology	1.50	2.00	3.00	10.90	1.00	0.00	12.1%	66.7%	100.0%
Ophthalmology & Visual Sciences	3.50	0.00	1.00	8.00	3.00	1.00	30.4%	0.0%	50.0%
Orthopedics & Rehabilitation	0.00	0.00	1.00	3.50	4.00	1.00	0.0%	0.0%	50.0%
Pathology & Laboratory Medicine	4.00	1.00	0.00	9.00	5.00	0.00	30.8%	16.7%	N/A
Pediatrics	4.50	2.00	4.00	8.20	1.00	2.00	35.4%	66.7%	66.7%
Pharmacology	1.00	1.00	1.00	5.00	2.00	0.00	16.7%	33.3%	100.0%
Biomolecular Chemistry	2.00	0.80	0.00	4.50	2.00	1.25	30.8%	28.6%	0.0%
Physiology	4.00	1.00	0.00	9.00	1.00	3.00	30.8%	50.0%	0.0%
Population Health Sciences	4.30	2.00	3.00	5.00	1.50	4.50	46.2%	57.1%	40.0%
Psychiatry	2.00	2.00	1.00	3.70	1.40	4.00	35.1%	58.8%	20.0%
Radiology	0.00	1.00	0.00	8.95	4.20	3.00	0.0%	19.2%	0.0%
Surgery	0.00	2.00	0.00	12.00	2.00	5.00	0.0%	50.0%	0.0%
Urology	0.00	0.00	0.00	3.00	0.00	2.00	0.0%	N/A	0.0%
School of Pharmacy	1.50	2.00	3.00	14.00	5.00	6.00	9.7%	28.6%	33.3%
Medical Sciences	2.00	1.00	1.00	4.00	2.00	1.00	33.3%	33.3%	50.0%
Pathobiological Sciences	0.00	2.00	0.00	12.00	4.00	1.00	0.0%	33.3%	0.0%
Comparative Biosciences	3.00	1.00	2.00	4.00	3.00	3.00	42.9%	25.0%	40.0%
Surgical Sciences	1.00	0.00	0.00	3.00	1.00	0.00	25.0%	0.0%	N/A
Social Studies	**111.70**	**38.00**	**88.00**	**208.72**	**59.50**	**65.00**	**34.9%**	**39.0%**	**57.5%**
Agricultural & Applied Economics	0.00	0.00	3.00	10.90	4.00	1.00	0.0%	0.0%	75.0%
Life Sciences Communication	2.00	3.00	0.00	2.00	0.00	1.00	50.0%	100.0%	0.0%
Community & Environmental Sociology	2.00	0.00	3.00	6.00	0.00	1.00	25.0%	N/A	75.0%
Natural Resources-Landscape Architecture	1.00	2.00	1.00	1.00	1.00	1.00	50.0%	66.7%	50.0%
Urban & Regional Planning	0.00	0.00	1.00	1.00	0.00	2.00	0.0%	N/A	33.3%
School of Business	4.75	4.00	7.00	33.67	17.00	9.00	12.4%	19.0%	43.8%
Counseling Psychology	1.00	0.00	3.00	3.00	0.00	1.00	25.0%	N/A	75.0%
Curriculum & Instruction	8.25	1.00	7.00	10.15	1.00	2.00	44.8%	50.0%	77.8%
Educational Leadership & Policy Analysis	3.00	0.00	1.00	8.00	3.00	1.00	27.3%	0.0%	50.0%
Educational Policy Studies	2.00	0.00	3.00	4.00	1.00	1.00	33.3%	0.0%	75.0%
Educational Psychology	4.00	1.00	2.00	9.00	0.00	2.00	30.8%	100.0%	50.0%
Rehabilitation Psychology & Special Education	3.00	1.00	2.00	3.00	1.00	2.00	50.0%	50.0%	50.0%
School of Human Ecology	14.00	2.00	8.00	7.00	2.00	4.00	66.7%	50.0%	66.7%
Law School	7.50	1.00	7.00	11.25	4.00	4.00	40.0%	20.0%	63.6%
Anthropology	8.00	0.00	2.00	6.00	3.00	1.00	57.1%	0.0%	66.7%
Afro-American Studies	2.50	1.00	3.00	2.25	0.00	0.00	52.6%	100.0%	100.0%
Communication Arts	4.00	4.00	3.00	6.00	4.00	1.00	40.0%	50.0%	75.0%

	Economics	0.20	0.00	4.00	15.33	2.00	11.00	1.3%	0.0%	26.7%
	Ethnic Studies	0.50	0.00	0.00	0.00	0.00	0.00	100.0%	N/A	N/A
	Geography	1.00	0.00	3.00	8.00	1.00	2.00	11.1%	0.0%	60.0%
	LaFollette School of Public Affairs	2.00	2.00	0.00	4.50	2.50	2.25	30.8%	44.4%	0.0%
	School of Journalism & Mass Communication	3.00	0.00	3.00	8.50	0.00	1.00	26.1%	N/A	75.0%
	School of Library & Information Studies	2.00	3.00	1.00	0.50	0.00	2.00	80.0%	100.0%	33.3%
	Political Science	3.00	3.00	2.00	13.00	5.00	5.75	18.8%	37.5%	25.8%
	Psychology	12.00	0.00	5.00	11.00	3.00	1.00	52.2%	0.0%	83.3%
	Social Work	3.50	3.00	3.00	3.00	1.00	1.00	53.8%	75.0%	75.0%
	Sociology	6.00	3.00	5.00	14.92	4.00	4.00	28.7%	42.9%	55.6%
	Urban & Regional Planning	0.00	0.00	0.00	3.75	0.00	1.00	0.0%	N/A	0.0%
	School of Nursing	9.50	4.00	6.00	0.00	0.00	0.00	100.0%	100.0%	100.0%
	Professional Development & Applied Studies	2.00	0.00	0.00	2.00	0.00	0.00	50.0%	N/A	N/A
Humanities		**90.25**	**39.50**	**30.50**	**131.23**	**39.00**	**25.00**	**40.7%**	**50.3%**	**55.0%**
	Art	6.00	2.00	1.00	10.00	4.00	4.00	37.5%	33.3%	20.0%
	Dance	1.00	0.00	3.00	2.00	0.00	1.00	33.3%	N/A	75.0%
	African Languages & Literature	2.00	0.00	0.00	2.50	0.00	2.00	44.4%	N/A	0.0%
	Art History	5.00	3.00	2.00	4.75	0.00	0.00	51.3%	100.0%	100.0%
	Classics	2.00	0.00	0.00	1.00	1.00	3.00	66.7%	0.0%	0.0%
	Comparative Literature	1.00	0.00	0.00	0.25	2.00	0.00	80.0%	0.0%	N/A
	East Asian Languages & Literature	2.00	4.00	1.00	1.00	2.00	3.00	66.7%	66.7%	25.0%
	English	15.20	7.00	5.00	13.30	8.00	0.00	53.3%	46.7%	100.0%
	French & Italian	4.00	3.00	2.00	9.25	1.00	0.00	30.2%	75.0%	100.0%
	German	3.00	2.00	0.00	6.35	2.00	0.00	32.1%	50.0%	N/A
	Hebrew & Semitic Studies	1.00	0.00	0.00	1.00	1.00	2.00	50.0%	0.0%	0.0%
	History	11.00	2.00	5.00	19.00	3.00	4.00	36.7%	40.0%	55.6%
	History of Science	1.00	1.00	0.00	1.50	3.00	0.00	40.0%	25.0%	N/A
	Linguistics	3.00	0.00	0.00	2.00	0.00	0.00	60.0%	N/A	N/A
	School of Music	10.50	2.00	2.00	27.00	4.00	0.00	28.0%	33.3%	100.0%
	Philosophy	2.00	0.00	1.00	12.00	0.00	1.00	14.3%	N/A	50.0%
	Scandinavian Studies	2.00	1.00	1.00	2.00	0.00	0.00	50.0%	100.0%	100.0%
	Slavic Languages	2.00	1.00	1.00	4.00	1.00	0.00	33.3%	50.0%	100.0%
	Languages & Cultures of Asia	3.00	3.00	0.00	3.33	1.00	0.00	47.4%	75.0%	N/A
	Spanish & Portuguese	4.00	4.00	2.00	7.00	3.00	4.00	36.4%	57.1%	33.3%
	Theatre & Drama	5.75	2.00	0.00	2.00	3.00	0.00	74.2%	40.0%	N/A
	Gender & Women's Studies	0.00	2.50	4.50	0.00	0.00	0.00	N/A	100.0%	100.0%
	Social Sciences	0.00	0.00	0.00	0.00	0.00	1.00	N/A	N/A	0.0%
	Liberal Studies & the Arts	3.80	0.00	0.00	0.00	0.00	0.00	100.0%	N/A	N/A

SOURCE: October 2010 IADS Frozen slice

NOTES: Faculty are assigned to discipline based on tenure home departments using the the classification system developed for the Women in Science and Engineering Leadership Institute (WISELI). An individual tenured in more than one department is shown based on the tenure split. Thus, a person who is 50% statistics and 50% plant pathology is shown as .5 FTE in Physical Sciences and .5 FTE in Biological Sciences. Faculty with zero-dollar appointments and faculty who are paid wholly through an administrative appointment (such as dean or chancellor) are excluded from the salary median and salary FTE calculations. Years are calculated based on current faculty appointment. (Some individuals have held appointments at UW Madison prior to the current appointment. The years in the prior appointment are not included in this calculation.)

Prepared by : Margaret Harrigan, Office of Academic Planning and Analysis

Table 3a. Tenure Promotion Outcomes by Gender, 2010

2006 - 2010

Division/Department	Women			Men		
	Reviewed	Achieved	%	Reviewed	Achieved	%
Physical Sciences	19	19	100.0%	69	63	91.3%
Biological Sciences	42	41	97.6%	80	76	95.0%
Social Studies	42	37	88.1%	49	47	95.9%
Humanities	37	36	97.3%	39	37	94.9%

SOURCE: Office of the Secretary of the Faculty.

Table 3b. Tenure Promotion Outcomes by Gender, 2010

Physical Sciences

Entering Cohort	Women Total Hired	Women % Still Probation	Women % Left w/o Tenure	Women % Tenured	Men Total Hired	Men % Still Probation	Men % Left w/o Tenure	Men % Tenured
1987-91	**17**	**0.0%**	**11.8%**	**88.2%**	**87**	**0.0%**	**24.1%**	**75.9%**
1991-95	**7**	**0.0%**	**57.1%**	**42.9%**	**35**	**0.0%**	**20.0%**	**80.0%**
1995-99	**10**	**0.0%**	**40.0%**	**60.0%**	**34**	**0.0%**	**11.8%**	**88.2%**
1999-03	**15**	**0.0%**	**20.0%**	**80.0%**	**75**	**0.0%**	**21.3%**	**78.7%**
2003-07	**20**	40.0%	10.0%	50.0%	**57**	42.1%	8.8%	49.1%
2007-11	12	100.0%	0.0%	0.0%	45	86.7%	6.7%	6.7%

Biological Sciences

Entering Cohort	Women Total Hired	Women % Still Probation	Women % Left w/o Tenure	Women % Tenured	Men Total Hired	Men % Still Probation	Men % Left w/o Tenure	Men % Tenured
1987-91	**27**	**0.0%**	**40.7%**	**59.3%**	**103**	**0.0%**	**32.0%**	**68.0%**
1991-95	**26**	**0.0%**	**26.9%**	**73.1%**	**82**	**0.0%**	**24.4%**	**75.6%**
1995-99	**22**	**0.0%**	**22.7%**	**77.3%**	**47**	**0.0%**	**25.5%**	**74.5%**
1999-03	**44**	2.3%	22.7%	75.0%	**84**	**0.0%**	**27.4%**	**72.6%**
2003-07	**31**	38.7%	9.7%	51.6%	**58**	37.9%	15.5%	46.6%
2007-11	24	100.0%	0.0%	0.0%	46	91.3%	4.3%	4.3%

Social Studies

Entering Cohort	Women Total Hired	Women % Still Probation	Women % Left w/o Tenure	Women % Tenured	Men Total Hired	Men % Still Probation	Men % Left w/o Tenure	Men % Tenured
1987-91	**72**	**0.0%**	**51.4%**	**48.6%**	**83**	**0.0%**	**54.2%**	**45.8%**
1991-95	**48**	**0.0%**	**45.8%**	**54.2%**	**50**	**0.0%**	**42.0%**	**58.0%**
1995-99	**41**	**0.0%**	**58.5%**	**41.5%**	**54**	**0.0%**	**51.9%**	**48.1%**
1999-03	**52**	1.9%	50.0%	48.1%	**79**	**0.0%**	**35.4%**	**64.6%**
2003-07	**62**	51.6%	19.4%	29.0%	**46**	34.8%	28.3%	37.0%
2007-11	37	83.8%	10.8%	5.4%	37	89.2%	10.8%	0.0%

Humanities

Entering Cohort	Women Total Hired	Women % Still Probation	Women % Left w/o Tenure	Women % Tenured	Men Total Hired	Men % Still Probation	Men % Left w/o Tenure	Men % Tenured
1987-91	**44**	**0.0%**	**36.4%**	**63.6%**	**50**	**0.0%**	**36.0%**	**64.0%**
1991-95	**27**	**0.0%**	**22.2%**	**77.8%**	**25**	**0.0%**	**24.0%**	**76.0%**
1995-99	**23**	**0.0%**	**21.7%**	**78.3%**	**21**	**0.0%**	**14.3%**	**85.7%**
1999-03	**47**	**0.0%**	**12.8%**	**87.2%**	**43**	**0.0%**	**20.9%**	**79.1%**
2003-07	**26**	30.8%	19.2%	50.0%	**26**	26.9%	15.4%	57.7%
2007-11	19	78.9%	10.5%	10.5%	15	93.3%	0.0%	6.7%

SOURCE: UW Madison Tenure file and IADS appointment information system, Dec 2010

NOTE: Numbers in **BOLDFACE** are final; numbers in normal typeface are in flux and will change year-to-year as new faculty are hired, are tenured, and/or leave the UW without tenure.

NOTE: Probationary faculty only. Adjustments made for time on tenure clock outside UW; no adjustments for tenure clock extensions.

NOTE: 1987-91 cohort hired between June 1987 and May 1991; 1991-95 cohort hired between June 1991 and May 1995; 1995-99 cohort hired between June 1995 and May 1999; 1999-03 cohort hired between June 1999 and May 2003; 2003-07 cohort hired between June 2003 and May 2007; 2007-11 cohort hired after May 15 2007.

Table 5a. Time at Institution (Median Number of Years) by Gender and Rank, 2010

Division/Department	Women				Men				Women's Median as % of Men's			
	ALL	Full	Associate	Assistant	ALL	Full	Associate	Assistant	ALL	Full	Associate	Assistant
Physical Sciences	8.0	14.0	7.0	3.0	13.0	21.0	7.0	2.0	61.5%	66.7%	100.0%	150.0%
Biological Sciences	9.0	17.0	9.0	2.0	14.0	21.0	9.0	2.0	64.3%	81.0%	100.0%	100.0%
Social Studies	9.0	18.0	8.5	3.0	11.0	19.0	8.0	2.0	81.8%	94.7%	106.3%	150.0%
Humanities	11.0	20.0	9.0	2.0	17.0	21.0	8.0	2.0	64.7%	95.2%	100.0%	100.0%

SOURCE: October 2010 IADS Frozen slice

Prepared by : Margaret Harrigan, Office of Academic Planning and Analysis

Table 5b. Attrition by Gender, 2009-2010

	Headcounts			%		
	Retired	Resigned	2009 Total Faculty	Retired	Resigned	Left UW
Total	49	41	2,174	2.3%	1.9%	4.1%
Women	15	19	663	2.3%	2.9%	5.1%
Men	34	22	1,511	2.3%	1.5%	3.7%
Physical Sciences						
Women	2	0	69	2.9%	0.0%	2.9%
Men	8	4	428	1.9%	0.9%	2.8%
Biological Sciences						
Women	4	5	179	2.2%	2.8%	5.0%
Men	13	8	524	2.5%	1.5%	4.0%
Social Studies						
Women	5	9	230	2.2%	3.9%	6.1%
Men	8	8	345	2.3%	2.3%	4.6%
Humanities						
Women	4	5	185	2.2%	2.7%	4.9%
Men	5	2	214	2.3%	0.9%	3.3%

SOURCE: IADS appointment system, Feb. 2010
NOTE:
Year is measured from July 1 through June 30.
Retired=all faculty who were age 55 or older at the time of termination.
Resigned=all faculty who were less than 55 years old at the time of termination.
Discipline is assigned based on appointment major department.
Prepared by : Margaret Harrigan, Office of Academic Planning and Analysis

Table 7a. Number and Percent of Women Scientists and Engineers in Administrative Positions, 2010

	Total Faculty (Full Profs.)			Department Chairs				
Division	Women	Men	% Women	Women	Men	% Women	% Women Chairs	% Men Chairs
Physical Sciences	31	277	**10.1%**	1	12	**7.7%**	*3.2%*	*4.3%*
Biological Sciences	73	313	**18.9%**	8	37	**17.8%**	*11.0%*	*11.8%*
Social Studies	88	193	**31.3%**	12	19	**38.7%**	*13.6%*	*9.8%*
Humanities	102	141	**42.0%**	16	10	**61.5%**	*15.7%*	*7.1%*
Total	294	924	**24.1%**	37	78	**32.2%**	*12.6%*	*8.4%*

SOURCE: IADS appointment system frozen slice, October 2010.
NOTE: Total faculty is a non-duplicating headcount of full professors. Faculty members are assigned to a discipline based on their divisional committee affiliation. The vast majority of department chairs also hold the rank of full professor. However, in any year, a small percentage of department chairs (e.g., 7 chairs, or 6% of total in 2002) hold the rank of asociate professor. Only faculty in schools with departments are counted in the "Total Faculty" columns, because only those faculty can become chairs.
Prepared by: Margaret Harrigan, Office of Academic Planning and Analysis and Jennifer Sheridan, WISELI.

Table 7b. Number and Percent of Women Scientists and Engineers in Administrative Positions, 2010

	Total Faculty (Full Profs.)			Deans (Faculty)				
Division	Women	Men	% Women	Women	Men	% Women	% Women Deans	% Men Deans
Physical Sciences	32	283	**10.2%**	1	7	**12.5%**	*3.1%*	*2.5%*
Biological Sciences	74	321	**18.7%**	3	15	**16.7%**	*4.1%*	*4.7%*
Social Studies	111	212	**34.4%**	14	13	**51.9%**	*12.6%*	*6.1%*
Humanities	107	143	**42.8%**	0	3	**0.0%**	*0.0%*	*2.1%*
Total	324	959	**25.3%**	21	38	**35.6%**	*6.5%*	*4.0%*

SOURCE: IADS Frozen Appointment Data view, October 2010.
NOTE: Includes both paid and zero-dollar deans, associate deans, and assistant deans. Faculty are assigned to a discipline based on the divisional committee responsible for approving their tenure. Each faculty member may choose only one affiliation. However, faculty in the same department may choose different affiliations. For example, about half of the faculty in Biochemistry are affiliated with the Biological Sciences Divisional Committee, and half are affiliated with the Physical Sciences Division. Only faculty report a divisional committee affiliation.
Prepared by: Margaret Harrigan, Office of Academic Planning and Analysis and Jennifer Sheridan, WISELI.

Table 7c. Number and Percent of Women Scientists and Engineers in Administrative Positions, 2010

	Total Faculty (Full Profs.)			Central Administration				
Division	Women	Men	% Women	Women	Men	% Women	% Women Admin.	% Men Admin.
Physical Sciences	32	283	**10.2%**	0	0	**N/A**	*0.0%*	*0.0%*
Biological Sciences	74	321	**18.7%**	0	2	**0.0%**	*0.0%*	*0.6%*
Social Studies	111	212	**34.4%**	0	2	**0.0%**	*0.0%*	*0.9%*
Humanities	107	143	**42.8%**	1	1	**50.0%**	*0.9%*	*0.7%*
Total	324	959	**25.3%**	1	4	**20.0%**	*0.3%*	*0.4%*

SOURCE: IADS Frozen Appointment Data view, October 2010.
NOTE: Faculty are assigned to a discipline based on the divisional committee responsible for approving their tenure. Each faculty member may choose only one affiliation. However, faculty in the same department may choose different affiliations. For example, about half of the faculty in Biochemistry are affiliated with the Biological Sciences Divisional Committee, and half are affiliated with the Physical Sciences Division. Only faculty report a divisional committee affiliation.
Prepared by: Margaret Harrigan, Office of Academic Planning and Analysis and Jennifer Sheridan, WISELI.

Table 7d. Number and Percent of Women Scientists and Engineers in Administrative Positions, 2010

	Total Faculty (Full Profs.)			Large Center & Institute Directors				
Division	Women	Men	% Women	Women	Men	% Women	% Women Directors	% Men Directors
Physical Sciences	32	283	**10.2%**	2	10	**16.7%**	*6.3%*	*3.5%*
Biological Sciences	74	321	**18.7%**	3	9	**25.0%**	*4.1%*	*2.8%*
Social Studies	111	212	**34.4%**	9	14	**39.1%**	*8.1%*	*6.6%*
Humanities	107	143	**42.8%**	12	9	**57.1%**	*11.2%*	*6.3%*
Total	324	959	**25.3%**	26	42	**38.2%**	*8.0%*	*4.4%*

SOURCE: IADS appointment system frozen slice, October 2010.
NOTE: Total faculty is a non-duplicating headcount of full professors. Faculty are assigned to a discipline based on their divisional committee affiliation. Includes both paid and zero-dollar academic program directors and associate or assistant academic program directors. Excludes four male assistant academic program directors without faculty status.
Prepared by: Margaret Harrigan, Office of Academic Planning and Analysis and Jennifer Sheridan, WISELI.

Table 8. Number of Women Science & Engineering Faculty in Endowed/Named Chairs Chairs, 2010

	Women	Men	% Female
Named Professorships			
Vilas Professors	4	8	33.3%
Hilldale Professors	3	9	25.0%
John Bascom Professors	1	3	25.0%
Evjue-Bascom Professors	4	5	44.4%
Named-Bascom Professors	19	35	35.2%
Steenbock Professors	1	7	12.5%
WARF Professorships	10	22	31.3%
Wisconsin Distinguished Professors	0	7	0.0%
Other named professorships	52	237	18.0%
Holds two named professorships	14	49	22.2%
New named professorships	4	12	25.0%
Number holding named professorships	80	284	22.0%
Full Professors at UW-Madison	**324**	**959**	**25.3%**
Major Awards			
Vilas Associate Award	9	17	34.6%
Hilldale Award	1	3	25.0%
H. I. Romnes Faculty Fellowship	1	5	16.7%
WARF Kellett Mid-Career Award	2	8	20.0%
Tenured Professors at UW-Madison	**481**	**1249**	**27.8%**

SOURCE: Office of the Provost. Totals from IADS appointment system frozen slice October 2010.
NOTE: Counts of Full Professors are headcounts of active "Professor" appointments in October 2010; counts of Tenured Professors are headcounts of active "Professor" and "Associate Professor" appointments in October 2010.
Prepared by: Jennifer Sheridan, WISELI

Table 9. Number and Percent of Women Science & Engineering Faculty on Influential Committees, 2010

	Women	Men	% Female
Faculty Senate			
Physical Sciences	9	32	22.0%
Biological Sciences	14.5	56	20.6%
Social Studies	23	33	41.1%
Arts & Humanities	17	17	50.0%
Senators (total)	**63.5**	**138**	**31.5%**
Physical Sciences	2	31.5	6.0%
Biological Sciences	15.5	53.5	22.5%
Social Studies	20.5	23.5	46.6%
Arts & Humanities	11	19.5	36.1%
Alternates (Total)	**49**	**128**	**27.7%**
Athletic Board**	DK	DK	DK
Campus Planning Committee	3	9	25.0%
Divisional Executive Committees*			
Physical Sciences	3	9	25.0%
Bio. Sciences, Curriculum Planning	2	7	22.2%
Bio. Sciences, Strategic Planning	0	0	DK
Bio. Sciences, Tenure	5	7	41.7%
Social Studies	4	8	33.3%
Arts & Humanities	5	7	41.7%
Faculty Compensation and Economic Benefits Commission*	2	7	22.2%
Faculty Rights and Responsibilities Committee*	4	5	44.4%
Library Committee*	3	5	37.5%
University Committee*	4	2	66.7%
University Academic Planning Council	4	8	33.3%
Graduate School Academic Planning Council	1	5	16.7%
Graduate School Executive Committee			
Physical Sciences	1	4	20.0%
Biological Sciences	2	3	40.0%
Social Studies	0	6	0.0%
Arts & Humanities	1	4	20.0%
Graduate School Research Committee			
Physical Sciences	1	10	9.1%
Biological Sciences	4	7	36.4%
Social Studies	4	6	40.0%
Arts & Humanities	6	4	60.0%
All Faculty	**674**	**1503**	**31.0%**
Physical Sciences	**72**	**424**	**14.5%**
Biological Sciences	**176**	**521**	**25.3%**
Social Studies	**233**	**340**	**40.7%**
Arts & Humanities	**193**	**217**	**47.1%**

SOURCE: 2010-2011 Faculty Senate and UW-Madison Committees, Office of the Secretary of the faculty. Snapshots, March 2011. Totals from IADS appointment system frozen slice October 2010.
NOTE: Counts of All Faculty by Division are headcounts of active faculty appointments in October 2010. Unassigned faculty have been temporarily assigned a division according to their departmental affiliation and/or research interests.
Prepared by: Jennifer Sheridan, WISELI

* Members chosen by election of faculty.
** Athletic Board members not posted as of March 2011.

Table 10a. Salary of Science & Engineering Faculty by Gender (Controlling for Department), 2010

Division/Department	Women, Median	Men, Median	Women's Median as % of Men's
Physical Sciences	**$93,534**	**$103,649**	**90.2%**
Biological Systems Engineering	70,949	90,708	78.2%
Soil Science	90,000	81,032	111.1%
Chemical & Biological Engineering	101,530	114,332	88.8%
Civil & Environmental Engineering	85,000	98,980	85.9%
Electrical & Computer Engineering	104,000	114,672	90.7%
Biomedical Engineering	100,000	116,000	86.2%
Industrial Engineering	136,000	105,625	128.8%
Mechanical Engineering	109,000	107,060	101.8%
Materials Science & Engineering	99,426	105,825	94.0%
Engineering Physics	109,363	118,600	92.2%
Engineering Professional Development	N/A	103,084	N/A
Astronomy	79,054	92,534	85.4%
Chemistry	97,097	112,571	86.3%
Computer Sciences	101,799	125,000	81.4%
Geoscience	81,189	87,729	92.5%
Mathematics	92,695	95,571	97.0%
Atmospheric & Oceanic Sciences	78,500	90,011	87.2%
Physics	99,122	96,626	102.6%
Statistics	94,610	102,631	92.2%
Biological Sciences	**$86,798**	**$93,849**	**92.5%**
Agronomy	71,985	81,293	88.6%
Animal Science	71,933	87,293	82.4%
Bacteriology	99,010	99,645	99.4%
Biochemistry	101,216	120,085	84.3%
Dairy Science	94,385	86,065	109.7%
Entomology	72,346	92,305	78.4%
Food Science	85,390	86,497	98.7%
Genetics	74,190	124,729	59.5%
Horticulture	71,533	83,917	85.2%
Nutritional Sciences	86,265	100,164	86.1%
Plant Pathology	74,688	93,510	79.9%
Forest & Wildlife Ecology	68,000	87,010	78.2%
Kinesiology	68,473	67,615	101.3%
Nelson Institute for Environmental Studies	89,725	96,774	92.7%
Botany	72,616	97,830	74.2%
Communicative Disorders	81,098	98,756	82.1%
Zoology	80,264	81,295	98.7%
Anatomy	107,427	111,558	96.3%
Anesthesiology	N/A	98,652	N/A
Biostatistics & Medical Informatics	96,644	112,642	85.8%
Family Medicine	109,953	76,190	144.3%
Genetics	75,140	78,329	95.9%

Obstetrics & Gynecology	71,226	99,331	71.7%
Medical History & Bioethics	92,203	74,665	123.5%
Human Oncology	75,269	93,606	80.4%
Medicine	81,818	88,671	92.3%
Dermatology	N/A	107,405	N/A
Medical Microbiology	119,657	113,109	105.8%
Medical Physics	103,089	93,827	109.9%
Neurology	69,959	102,621	68.2%
Neurological Surgery	92,036	70,194	131.1%
Oncology	82,482	126,797	65.1%
Ophthalmology & Visual Sciences	107,468	112,528	95.5%
Orthopedics & Rehabilitation	74,373	80,444	92.5%
Pathology & Laboratory Medicine	101,653	100,029	101.6%
Pediatrics	96,130	114,062	84.3%
Pharmacology	84,476	117,570	71.9%
Biomolecular Chemistry	98,886	107,411	92.1%
Physiology	134,195	135,344	99.2%
Population Health Sciences	106,688	102,391	104.2%
Psychiatry	87,330	80,762	108.1%
Radiology	117,213	81,818	143.3%
Surgery	101,852	81,818	124.5%
Urology	N/A	98,182	N/A
School of Pharmacy	78,319	106,583	73.5%
Medical Sciences	96,324	96,371	100.0%
Pathobiological Sciences	98,817	110,851	89.1%
Comparative Biosciences	94,892	86,689	109.5%
Surgical Sciences	96,869	93,285	103.8%
Social Studies	**$85,884**	**$105,875**	**81.1%**
Agricultural & Applied Economics	81,709	111,784	73.1%
Life Sciences Communication	78,333	105,013	74.6%
Community & Environmental Sociology	80,000	80,653	99.2%
Natural Resources-Landscape Architecture	71,553	66,111	108.2%
Urban & Regional Planning	59,412	64,870	91.6%
School of Business	161,112	184,802	87.2%
Counseling Psychology	63,000	85,734	73.5%
Curriculum & Instruction	81,468	92,465	88.1%
Educational Leadership & Policy Analysis	85,420	99,727	85.7%
Educational Policy Studies	65,659	88,537	74.2%
Educational Psychology	76,128	97,458	78.1%
Rehabilitation Psychology & Special Education	70,576	79,686	88.6%
School of Human Ecology	80,892	85,888	94.2%
Law School	129,515	134,500	96.3%
Anthropology	76,333	77,401	98.6%
Afro-American Studies	83,882	110,779	75.7%
Communication Arts	75,000	83,559	89.8%
Economics	117,500	184,000	63.9%
Ethnic Studies	93,182	N/A	N/A
Geography	67,000	88,092	76.1%
LaFollette School of Public Affairs	115,323	100,000	115.3%
School of Journalism & Mass Communication	81,734	92,286	88.6%

	School of Library & Information Studies	76,899	70,000	109.9%
	Political Science	94,623	100,946	93.7%
	Psychology	98,974	127,920	77.4%
	Social Work	80,000	111,052	72.0%
	Sociology	89,315	100,818	88.6%
	Urban & Regional Planning	N/A	79,977	N/A
	School of Nursing	85,884	N/A	N/A
	Professional Development & Applied Studies	75,444	82,799	91.1%
Humanities		**$77,328**	**$79,993**	**96.7%**
	Art	70,542	68,790	102.5%
	Dance	52,000	66,365	78.4%
	African Languages & Literature	101,440	89,739	113.0%
	Art History	80,643	85,762	94.0%
	Classics	112,435	58,000	193.9%
	Comparative Literature	99,164	58,885	168.4%
	East Asian Languages & Literature	69,000	58,212	118.5%
	English	82,000	96,000	85.4%
	French & Italian	66,811	86,142	77.6%
	German	80,139	83,733	95.7%
	Hebrew & Semitic Studies	82,373	64,500	127.7%
	History	84,060	90,376	93.0%
	History of Science	77,901	74,569	104.5%
	Linguistics	86,232	106,013	81.3%
	School of Music	75,710	80,442	94.1%
	Philosophy	74,398	86,948	85.6%
	Scandinavian Studies	67,117	78,866	85.1%
	Slavic Languages	78,028	87,254	89.4%
	Languages & Cultures of Asia	82,269	85,422	96.3%
	Spanish & Portuguese	59,773	68,051	87.8%
	Theatre & Drama	73,486	65,706	111.8%
	Gender & Women's Studies	64,000	N/A	N/A
	Social Sciences	N/A	72,932	N/A
	Liberal Studies & the Arts	73,611	N/A	N/A

SOURCE: October 2010 IADS Frozen slice

NOTE:

Salaries reported are for personnel paid within the department only; department members being paid as administrators, or who hold zero-dollar appointments, are not counted. Salary paid on 9-month basis.

Prepared by : Margaret Harrigan, Office of Academic Planning and Analysis

Table 10b. Salary of Science & Engineering Faculty by Gender (Controlling for Department and Rank), 2010

Division/Department	Women's Median Salary			Men's Median Salary			Women's Median Salary as % of Men's		
	Full	Associate	Assistant	Full	Associate	Assistant	Full	Associate	Assistant
Physical Sciences	**$114,799**	**$93,016**	**$84,479**	**$117,268**	**$93,242**	**$83,000**	**97.9%**	**99.8%**	**101.8%**
Biological Systems Engineering	N/A	73,989	67,909	92,666	72,299	69,545	N/A	102.3%	97.6%
Soil Science	N/A	90,000	N/A	87,516	73,719	63,333	N/A	122.1%	N/A
Chemical & Biological Engineering	118,225	N/A	84,834	165,494	93,000	84,834	71.4%	N/A	100.0%
Civil & Environmental Engineering	120,000	101,467	84,740	127,918	92,948	83,665	93.8%	109.2%	101.3%
Electrical & Computer Engineering	120,811	101,500	88,000	121,575	105,000	89,000	99.4%	96.7%	98.9%
Biomedical Engineering	N/A	102,000	91,326	136,300	115,000	N/A	N/A	88.7%	N/A
Industrial Engineering	136,000	N/A	82,500	151,977	104,585	94,000	89.5%	N/A	87.8%
Mechanical Engineering	140,881	88,842	N/A	118,651	95,000	88,000	118.7%	93.5%	N/A
Materials Science & Engineering	113,248	98,140	N/A	152,500	102,465	87,500	74.3%	95.8%	N/A
Engineering Physics	109,363	N/A	N/A	136,555	103,121	87,218	80.1%	N/A	N/A
Engineering Professional Development	N/A	N/A	N/A	116,933	81,551	85,909	N/A	N/A	N/A
Astronomy	89,405	N/A	76,527	107,550	N/A	77,622	83.1%	N/A	98.6%
Chemistry	97,097	105,000	72,000	120,000	82,393	70,685	80.9%	127.4%	101.9%
Computer Sciences	122,000	83,420	90,959	139,433	126,000	89,931	87.5%	66.2%	101.1%
Geoscience	81,189	N/A	N/A	89,905	72,298	68,550	90.3%	N/A	N/A
Mathematics	90,337	92,695	N/A	103,609	84,690	77,000	87.2%	109.5%	N/A
Atmospheric & Oceanic Sciences	N/A	N/A	78,500	98,808	82,245	80,000	N/A	N/A	98.1%
Physics	179,672	88,719	71,688	103,843	79,629	71,713	173.0%	111.4%	100.0%
Statistics	127,330	90,042	65,590	123,000	81,574	75,835	103.5%	110.4%	86.5%
Biological Sciences	**$109,576**	**$80,264**	**$71,737**	**$112,264**	**$80,259**	**$74,000**	**97.6%**	**100.0%**	**96.9%**
Agronomy	144,818	71,930	71,985	82,397	81,721	62,067	175.8%	88.0%	116.0%
Animal Science	N/A	N/A	71,933	92,540	77,416	63,163	N/A	N/A	113.9%
Bacteriology	99,125	75,436	N/A	108,538	77,045	N/A	91.3%	97.9%	N/A
Biochemistry	101,216	92,695	N/A	127,112	89,352	83,000	79.6%	103.7%	N/A
Dairy Science	94,385	N/A	N/A	97,180	71,845	61,364	97.1%	N/A	N/A
Entomology	95,803	71,402	N/A	98,030	74,378	67,311	97.7%	96.0%	N/A
Food Science	85,390	N/A	N/A	93,732	81,777	65,455	91.1%	N/A	N/A
Genetics	144,818	77,173	68,067	124,729	83,096	N/A	116.1%	92.9%	N/A
Horticulture	N/A	72,473	60,955	94,722	82,888	N/A	N/A	87.4%	N/A
Nutritional Sciences	99,073	73,649	N/A	106,933	78,226	75,668	92.6%	94.2%	N/A
Plant Pathology	89,944	71,384	63,568	94,610	N/A	59,177	95.1%	N/A	107.4%
Forest & Wildlife Ecology	86,798	N/A	67,500	102,188	71,754	65,000	84.9%	N/A	103.8%
Kinesiology	89,752	67,232	59,588	105,463	70,370	59,565	85.1%	95.5%	100.0%
Nelson Institute for Environmental Studies	116,182	89,725	65,538	102,333	N/A	67,877	113.5%	N/A	96.6%
Botany	103,543	71,555	55,394	98,958	77,382	N/A	104.6%	92.5%	N/A
Communicative Disorders	106,403	80,523	64,997	98,756	N/A	N/A	107.7%	N/A	N/A
Zoology	96,278	74,444	78,000	97,565	69,678	75,000	98.7%	106.8%	104.0%
Anatomy	119,822	87,181	N/A	113,094	86,576	71,646	105.9%	100.7%	N/A
Anesthesiology	N/A	N/A	N/A	109,576	78,980	N/A	N/A	N/A	N/A

Biostatistics & Medical Informatics	139,016	96,644	N/A	126,350	92,421	86,767	110.0%	104.6%	N/A
Family Medicine	123,954	95,951	N/A	142,085	92,295	70,786	87.2%	104.0%	N/A
Genetics	N/A	76,090	71,208	102,621	74,302	74,190	N/A	102.4%	96.0%
Obstetrics & Gynecology	132,217	71,226	65,455	107,541	75,265	N/A	122.9%	94.6%	N/A
Medical History & Bioethics	118,408	67,665	65,455	153,209	75,017	63,736	77.3%	90.2%	102.7%
Human Oncology	N/A	75,269	N/A	107,167	80,152	63,409	N/A	93.9%	N/A
Medicine	139,696	95,170	75,682	127,647	83,945	75,273	109.4%	113.4%	100.5%
Dermatology	N/A	N/A	N/A	113,267	86,998	N/A	N/A	N/A	N/A
Medical Microbiology	121,425	77,022	N/A	113,382	87,891	N/A	107.1%	87.6%	N/A
Medical Physics	124,086	N/A	82,091	96,080	93,849	77,727	129.1%	N/A	105.6%
Neurology	122,727	N/A	67,707	109,618	N/A	68,398	112.0%	N/A	99.0%
Neurological Surgery	114,955	N/A	69,117	93,103	71,141	70,194	123.5%	N/A	98.5%
Oncology	130,909	83,846	72,678	126,797	79,378	N/A	103.2%	105.6%	N/A
Ophthalmology & Visual Sciences	107,468	N/A	57,273	125,602	85,115	90,000	85.6%	N/A	63.6%
Orthopedics & Rehabilitation	N/A	N/A	74,373	94,147	70,178	74,373	N/A	N/A	100.0%
Pathology & Laboratory Medicine	101,359	112,636	N/A	108,061	59,418	N/A	93.8%	189.6%	N/A
Pediatrics	119,657	88,974	76,500	128,340	67,170	76,091	93.2%	132.5%	100.5%
Pharmacology	118,180	84,476	73,182	124,051	85,503	N/A	95.3%	98.8%	N/A
Biomolecular Chemistry	104,231	85,966	N/A	127,647	92,726	73,182	81.7%	92.7%	N/A
Physiology	136,041	90,000	N/A	144,835	81,924	76,530	93.9%	109.9%	N/A
Population Health Sciences	126,618	108,601	75,860	128,945	90,307	78,918	98.2%	120.3%	96.1%
Psychiatry	127,517	79,386	73,636	174,161	69,892	68,087	73.2%	113.6%	108.2%
Radiology	N/A	117,213	N/A	90,864	71,159	81,818	N/A	164.7%	N/A
Surgery	N/A	101,852	N/A	91,789	54,315	81,818	N/A	187.5%	N/A
Urology	N/A	N/A	N/A	130,909	N/A	68,359	N/A	N/A	N/A
School of Pharmacy	100,161	93,489	74,000	122,815	84,630	74,000	81.6%	110.5%	100.0%
Medical Sciences	116,062	78,424	73,636	116,785	80,120	76,909	99.4%	97.9%	95.7%
Pathobiological Sciences	N/A	98,817	N/A	120,661	77,224	85,000	N/A	128.0%	N/A
Comparative Biosciences	107,701	83,832	85,000	120,168	83,831	80,000	89.6%	100.0%	106.3%
Surgical Sciences	96,869	N/A	N/A	96,545	75,589	N/A	100.3%	N/A	N/A
Social Studies	**$100,510**	**$78,108**	**$67,746**	**$117,971**	**$100,000**	**$77,000**	**85.2%**	**78.1%**	**88.0%**
Agricultural & Applied Economics	N/A	N/A	81,709	117,000	97,180	95,000	N/A	N/A	86.0%
Life Sciences Communication	89,385	73,087	N/A	125,007	N/A	64,434	71.5%	N/A	N/A
Community & Environmental Sociology	109,964	N/A	69,781	81,244	N/A	69,890	135.3%	N/A	99.8%
Natural Resources-Landscape Architecture	102,741	71,553	59,658	79,847	66,111	65,941	128.7%	108.2%	90.5%
Urban & Regional Planning	N/A	N/A	59,412	99,833	N/A	64,306	N/A	N/A	92.4%
School of Business	221,038	167,391	132,000	199,856	169,200	145,000	110.6%	98.9%	91.0%
Counseling Psychology	91,813	N/A	60,000	93,064	N/A	78,403	98.7%	N/A	76.5%
Curriculum & Instruction	85,112	85,198	63,695	96,318	85,000	61,787	88.4%	100.2%	103.1%
Educational Leadership & Policy Analysis	88,212	N/A	60,000	112,691	85,000	63,000	78.3%	N/A	95.2%
Educational Policy Studies	94,642	N/A	60,000	88,537	135,004	60,000	106.9%	N/A	100.0%
Educational Psychology	93,846	67,052	58,128	103,815	N/A	64,440	90.4%	N/A	90.2%
Rehabilitation Psychology & Special Education	84,192	66,193	60,000	91,768	76,586	59,701	91.7%	86.4%	100.5%
School of Human Ecology	91,780	102,321	63,738	89,737	76,000	81,727	102.3%	134.6%	78.0%
Law School	144,662	131,589	104,424	151,239	129,343	105,953	95.7%	101.7%	98.6%
Anthropology	80,948	N/A	63,906	87,423	66,363	65,000	92.6%	N/A	98.3%
Afro-American Studies	116,040	65,787	63,000	110,779	N/A	N/A	104.7%	N/A	N/A

	Communication Arts	93,238	72,874	68,000	89,087	71,401	61,000	104.7%	102.1%	111.5%
	Economics	133,283	N/A	105,196	228,000	212,500	101,729	58.5%	N/A	103.4%
	Ethnic Studies	93,182	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Geography	88,724	N/A	66,000	88,427	100,000	68,000	100.3%	N/A	97.1%
	LaFollette School of Public Affairs	166,420	100,940	N/A	129,015	130,000	75,621	129.0%	77.6%	N/A
	School of Journalism & Mass Communication	118,249	N/A	62,695	96,376	N/A	67,780	122.7%	N/A	92.5%
	School of Library & Information Studies	93,437	73,798	69,819	103,889	N/A	68,832	89.9%	N/A	101.4%
	Political Science	144,383	98,000	70,293	117,971	86,500	69,915	122.4%	113.3%	100.5%
	Psychology	117,834	N/A	72,000	135,000	78,665	78,000	87.3%	N/A	92.3%
	Social Work	92,600	77,666	66,080	126,153	110,000	77,000	73.4%	70.6%	85.8%
	Sociology	138,468	81,630	71,629	125,391	79,559	73,766	110.4%	102.6%	97.1%
	Urban & Regional Planning	N/A	N/A	N/A	79,977	N/A	70,631	N/A	N/A	N/A
	School of Nursing	109,997	79,900	71,205	N/A	N/A	N/A	N/A	N/A	N/A
	Professional Development & Applied Studies	75,444	N/A	N/A	82,799	N/A	N/A	91.1%	N/A	N/A
Humanities		**$85,046**	**$64,602**	**$60,000**	**$87,134**	**$65,295**	**$55,025**	**97.6%**	**98.9%**	**109.0%**
	Art	74,140	65,857	61,140	77,042	66,628	54,666	96.2%	98.8%	111.8%
	Dance	75,406	N/A	52,000	70,143	N/A	53,000	107.5%	N/A	98.1%
	African Languages & Literature	101,440	N/A	N/A	107,014	N/A	53,451	94.8%	N/A	N/A
	Art History	85,046	61,692	70,129	85,762	N/A	N/A	99.2%	N/A	N/A
	Classics	112,435	N/A	N/A	91,362	80,397	58,000	123.1%	N/A	N/A
	Comparative Literature	99,164	N/A	N/A	105,225	57,008	N/A	94.2%	N/A	N/A
	East Asian Languages & Literature	87,859	63,363	60,000	109,518	74,462	53,373	80.2%	85.1%	112.4%
	English	95,506	77,328	61,000	113,388	64,648	N/A	84.2%	119.6%	N/A
	French & Italian	88,905	63,659	55,036	87,801	59,671	N/A	101.3%	106.7%	N/A
	German	81,778	65,755	N/A	90,093	69,025	N/A	90.8%	95.3%	N/A
	Hebrew & Semitic Studies	82,373	N/A	N/A	118,006	70,000	57,000	69.8%	N/A	N/A
	History	88,721	84,853	60,533	100,455	90,000	75,500	88.3%	94.3%	80.2%
	History of Science	91,814	63,987	N/A	89,741	66,667	N/A	102.3%	96.0%	N/A
	Linguistics	86,232	N/A	N/A	106,013	N/A	N/A	81.3%	N/A	N/A
	School of Music	79,903	59,307	58,567	82,254	63,328	N/A	97.1%	93.6%	N/A
	Philosophy	85,721	N/A	70,000	89,719	N/A	70,000	95.5%	N/A	100.0%
	Scandinavian Studies	84,859	56,752	56,812	78,866	N/A	N/A	107.6%	N/A	N/A
	Slavic Languages	98,765	69,000	55,000	90,535	60,013	N/A	109.1%	115.0%	N/A
	Languages & Cultures of Asia	89,058	78,000	N/A	85,422	66,260	N/A	104.3%	117.7%	N/A
	Spanish & Portuguese	80,831	57,319	52,941	80,786	59,646	57,075	100.1%	96.1%	92.8%
	Theatre & Drama	77,891	62,519	N/A	73,877	65,251	N/A	105.4%	95.8%	N/A
	Gender & Women's Studies	N/A	67,665	64,000	N/A	N/A	N/A	N/A	N/A	N/A
	Social Sciences	N/A	N/A	N/A	N/A	N/A	72,932	N/A	N/A	N/A
	Liberal Studies & the Arts	73,611	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

SOURCE: October 2010 IADS Frozen slice

NOTE:

Salaries reported are for personnel paid within the department only; department members being paid as administrators, or who hold zero-dollar appointments, are not counted. Salary paid on 9-month basis.

Prepared by : Margaret Harrigan, Office of Academic Planning and Analysis

Table 12a. Offers Made, 2007-2010

Division/School	Junior Offers Made			Junior Offers Accepted			
				Women		Men	
	Women	Men	% Women	N	% Accept	N	% Accept
Physical Sciences	**19**	**64**	**22.9%**	**11**	**57.9%**	**45**	**70.3%**
College of Engineering*	9	18	33.3%	4	44.4%	15	83.3%
Letters & Sciences	9	41	18.0%	6	66.7%	27	65.9%
College of Agricultural & Life Sciences	1	5	16.7%	1	100.0%	3	60.0%
Biological Sciences	**44**	**85**	**34.1%**	**32**	**72.7%**	**69**	**81.2%**
Letters & Sciences	2	2	50.0%	2	100.0%	2	100.0%
School of Veterinary Medicine	4	9	30.8%	3	75.0%	6	66.7%
School of Pharmacy	6	8	42.9%	3	50.0%	6	75.0%
Medical School*	20	47	29.9%	16	80.0%	39	83.0%
College of Agricultural & Life Sciences	12	19	38.7%	8	66.7%	16	84.2%

Division/School	Tenured** Offers Made			Tenured** Offers Accepted			
				Women		Men	
	Women	Men	% Women	N	% Accept	N	% Accept
Physical Sciences	**2**	**14**	**12.5%**	**1**	**50.0%**	**11**	**78.6%**
College of Engineering	2	7	22.2%	1	50.0%	6	85.7%
Letters & Sciences	0	6	0.0%	N/A	N/A	4	66.7%
College of Agricultural & Life Sciences	0	1	0.0%	N/A	N/A	1	N/A
Biological Sciences	**12**	**18**	**40.0%**	**9**	**75.0%**	**13**	**72.2%**
Letters & Sciences	0	1	0.0%	N/A	N/A	1	100.0%
School of Veterinary Medicine	1	1	50.0%	1	100.0%	1	100.0%
School of Pharmacy	0	0	#DIV/0!	N/A	N/A	N/A	N/A
Medical School	10	14	41.7%	7	70.0%	10	71.4%
College of Agricultural & Life Sciences	1	2	33.3%	1	100.0%	1	50.0%

* Three offer decisions are pending.

** Associate Professor and Professor titles.

Table 12b. Base Salary (12 Month) Offers, 2007-2010

Division/School	Base Salary, Offers Made, Junior Faculty: Women Median	Women Range (K)	Men Median	Men Range (K)	Women's Median as % of Men's	Base Salary, Offers Accepted, Junior Faculty: Women Median	Women Range (K)	Men Median	Men Range (K)	Women's Median as % of Men's
Physical Sciences	**$100,222**	**$83 - $109**	**$102,056**	**$72 - $156**	**98.2%**	**$100,222**	**$83 - $109**	**$103,889**	**$72 - $156**	**96.5%**
College of Engineering	$103,889	$100 - $109	$107,556	$101 - $156	96.6%	$103,278	$101 - $109	$106,944	$101 - $156	96.6%
Letters & Sciences	$91,667	$86 - $108	$95,333	$83 - $118	96.2%	$89,222	$86 - $108	$95,333	$83 - $118	93.6%
College of Agricultural & Life Sciences	$83,000	$83	$85,000	$72 - $155	107.1%	$83,000	$83	$85,000	$72 - $155	N/A
Biological Sciences	**$85,556**	**$58 - $130**	**$90,222**	**$45 - $400**	**94.8%**	**$83,111**	**$58 - $130**	**$90,000**	**$45 - $150**	**92.3%**
Letters & Sciences	$85,556	$76 - $95	$93,500	$92 - $95	91.5%	$85,556	$76 - $95	$93,500	$92 - $95	91.5%
School of Veterinary Medicine	$94,889	$87 - $110	$100,833	$92 - $150	94.1%	$97,778	$87 - $110	$100,833	$94 - $150	97.0%
School of Pharmacy	$86,278	$82 - $90	$84,944	$82 - $90	101.6%	$87,000	$82 - $90	$84,778	$82 - $90	102.6%
Medical School	$90,000	$58 - $130	$87,500	$45 - $400	102.9%	$95,000	$58 - $130	$87,500	$45 - $150	108.6%
College of Agricultural & Life Sciences	$83,056	$71 - $105	$90,139	$68 - $112	92.1%	$81,889	$71 - $86	$83,639	$68 - $112	97.9%

Division/School	Base Salary, Offers Made, Tenured Faculty: Women Median	Women Range (K)	Men Median	Men Range (K)	Women's Median as % of Men's	Base Salary, Offers Accepted, Tenured Faculty: Women Median	Women Range (K)	Men Median	Men Range (K)	Women's Median as % of Men's
Physical Sciences	**$122,222**	**$122**	**$140,556**	**$120 - $298**	**87.0%**	**$122,222**	**$122**	**$140,556**	**$120 - $298**	**87.0%**
College of Engineering	$122,222	$122	$140,556	$120 - $165	87.0%	$122,222	$122	$134,444	$120 - $165	90.9%
Letters & Sciences	N/A	N/A	$149,722	$126 - $298	N/A	N/A	N/A	$137,500	$126 - $298	N/A
College of Agricultural & Life Sciences	N/A	N/A	$171,111	$171	N/A	N/A	N/A	$171,111	$171	N/A
Biological Sciences	**$150,000**	**$70 - $250**	**$165,000**	**$90 - $310**	**90.9%**	**$151,389**	**$70 - $250**	**$183,905**	**$104 - $310**	**82.3%**
Letters & Sciences	N/A	N/A	$103,889	$104	N/A	N/A	N/A	$103,889	$104	N/A
School of Veterinary Medicine	$152,778	$153	$165,000	$165	92.6%	$152,778	$153	$165,000	$165	92.6%
School of Pharmacy	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Medical School	$150,000	$70 - $250	$136,889	$90 - $310	109.6%	$166,667	$70 - $250	$196,700	$110 - $310	84.7%
College of Agricultural & Life Sciences	$85,556	$86	$256,925	$208 - $306	33.3%	$85,556	$86	$305,556	$306	28.0%

Table 12c. Total Startup Package* Offers, 2007-2010

Division/School	Total Startup, Offers Made, Junior Faculty: Women Median	Women Range (K)	Men Median	Men Range (K)	Women's Median as % of Men's	Total Startup, Offers Accepted, Junior Faculty: Women Median	Women Range (K)	Men Median	Men Range (K)	Women's Median as % of Men's
Physical Sciences	**$255,500**	**$48 - $1106**	**$233,000**	**$41 - $854**	**109.7%**	**$297,000**	**$53 - $854**	**$260,000**	**$48 - $854**	**114.2%**
College of Engineering	$297,000	$193 - $616	$302,500	$140 - $652	98.2%	$448,500	$200 - $616	$300,000	$140 - $652	149.5%
Letters & Sciences	$253,500	$48 - $1106	$100,500	$41 -$854	252.2%	$229,224	$53 - $854	$250,800	$48 -$854	91.4%
College of Agricultural & Life Sciences	$333,000	$333	$175,000	$63 - $260	190.3%	$333,000	$333	$165,000	$63 - $260	N/A
Biological Sciences	**$355,000**	**$10 - $940**	**$336,000**	**$11 - $940**	**105.7%**	**$328,102**	**$29 - $810**	**$343,000**	**$50 - $940**	**95.7%**
Letters & Sciences	$290,612	$107 - $475	$440,849	$432 - $450	65.9%	$290,612	$107 - $475	$440,849	$432 - $450	65.9%
School of Veterinary Medicine	$386,204	$316 - $422	$303,602	$150 - $405	127.2%	$386,204	$316 - $422	$336,000	$150 - $405	114.9%
School of Pharmacy	$386,000	$10 - $810	$620,000	$11 - $745	62.3%	$455,000	$100 - $810	$620,000	$100 - $710	73.4%
Medical School	$397,500	$150 - $750	$350,000	$50 - $832	113.6%	$425,000	$150 - $468	$337,500	$50 - $832	125.9%
College of Agricultural & Life Sciences	$386,000	$101 - $940	$267,000	$144 - $940	144.6%	$266,000	$101 - $503	$267,000	$144 -$940	99.6%

Division/School	Total Startup, Offers Made, Tenured Faculty: Women Median	Women Range (K)	Men Median	Men Range (K)	Women's Median as % of Men's	Total Startup, Offers Accepted, Tenured Faculty: Women Median	Women Range (K)	Men Median	Men Range (K)	Women's Median as % of Men's
Physical Sciences	**$376,000**	**$320 - $432**	**$275,702**	**$3 - $1883**	**136.4%**	**$432,000**	**$432**	**$265,000**	**$3 - $750**	**163.0%**
College of Engineering	$376,000	$320 - $432	$265,000	$130 - $750	141.9%	$432,000	$432	$323,000	$130 - $750	133.7%
Letters & Sciences	N/A	N/A	$190,952	$3 - $1883	N/A	N/A	N/A	$80,928	$3 - $386	N/A
College of Agricultural & Life Sciences	N/A	N/A	$618,000	$618	N/A	N/A	N/A	$618,000	$618	N/A
Biological Sciences	**$390,000**	**$102 - $411**	**$262,500**	**$35 - $1993**	**148.6%**	**$400,000**	**$225 - $411**	**$197,250**	**$35 - $1993**	**202.8%**
Letters & Sciences	N/A	N/A	$169,500	$170	N/A	N/A	N/A	$169,500	$170	N/A
School of Veterinary Medicine	$225,000	$225	$225,000	$225	100.0%	$225,000	$225	$225,000	$225	100.0%
School of Pharmacy	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Medical School	$390,000	$102 - $400	$300,000	$35 - $500	130.0%	$400,000	$400	$120,000	$35 - $350	333.3%
College of Agricultural & Life Sciences	$411,000	$411	$1,993,000	$1,993	20.6%	$411,000	$411	$1,993,000	$1,993	20.6%

* Total Startup Package does not include Base Salary.

Table 13. New Hires, 2010

	2010-2011	
	Total Hires	Percent Women
Junior Hires		
Biological Sciences	25	44.0%
Physical Sciences	7	14.3%
Senior Hires		
Biological Sciences	9	11.1%
Physical Sciences	4	25.0%
Total Hires, Biological Sciences	34	35.3%
Total Hires, Physical Sciences	11	18.2%
Total Hires, Junior	32	37.5%
Total Hires, Senior	13	15.4%
TOTAL HIRES	**45**	**31.1%**

NOTE: Faculty hired as Assistant Professors are Junior Hires; Associate and (Full) Professors are Senior Hires.
SOURCE: October 2010 IADS Frozen slice.

WISELI Research/Evaluation Report:

Sheridan, Jennifer. March 24, 2010. Partnerships for Adaptation, Implementation, and Dissemination (PAID). Final Report, 2010.

Partnerships for Adaptation, Implementation, and Dissemination (PAID)

Final Report, 2007-2010

PI: Jennifer Sheridan
Co-PIs: Molly Carnes, Jo Handelsman, and Amy Wendt

In our original proposal, the UW-Madison *Partnerships for Adaptation, Implementation, and Dissemination* (PAID) grant proposed to (1) continue and disseminate the current search committee training and department chair workshops; and (2) develop and disseminate ten evidence-based brochures and booklets addressing unconscious biases and assumptions in specific areas that impede the advancement of women in academic science and engineering. Specifically, we proposed to:

1. Continue *Searching for Excellence & Diversity* hiring workshops on the UW-Madison campus, with the ultimate goal of achieving 40% female new assistant professors in Biological and Physical sciences by 2009/the end of the grant.
2. Continue offering *Enhancing Department Climate: A Chair's Role* workshops at UW-Madison, with the goal of reaching 70% of all Biological and Physical science departments by 2009 (i.e., an additional 29 department chairs from Biological and Physical Science departments participate in a workshop in 2007-2009.)
3. Continue disseminating our *Searching for Excellence & Diversity* workshops to institutions beyond UW-Madison.
4. Create a dissemination plan for the *Enhancing Department Climate: A Chair's Role* workshops.
5. Create new publications/brochures for distribution to UW-Madison and other institutions to use for their own ADVANCE-related efforts. The specific items to be produced were:
    a. Reviewing Applicants: Research on Bias and Assumptions (Brochure)
    b. Guidebook for Faculty Search Committees (Booklet)
    c. Hiring Dual-Career Couples: Promises, Pitfalls, and Best Practices (Brochure)
    d. Benefits and Challenges of Diversity (Brochure)
    e. Best Practices: Tips for Chairs on Improving their Departmental Climate (Brochure)
    f. Best Practices: Tips for Faculty on Improving their Departmental Climate (Brochure)
    g. Ensuring Success of Women and Minority Faculty Members (Brochure)
    h. Evaluating Candidates for Tenure: Research on Bias and Assumptions (Brochure)
    i. Achieving Tenure: A guide for women and minorities (Brochure)
    j. Nominations for Major Awards and Honors (Brochure)
6. Disseminate the new brochures and booklets to other institutions. We committed to attend at least one annual meeting where these materials can reach a wide audience each year, and during the grant period we expected to reach 100 different universities with our materials. We also committed to upgrading our online distribution of these materials to make it easier and more user-friendly to order them (at printing cost.)

In the following sections we report our progress on these six main objectives, as well as our final financial report.

1. Continue *Searching for Excellence & Diversity* hiring workshops on the UW-Madison campus

WISELI offered *Searching for Excellence & Diversity* hiring workshops to the entire UW-Madison campus throughout the course of this grant. From 2007 to 2010, we served the UW-Madison community as follows:

***Searching for Excellence & Diversity* Workshop Implementation & Participation**					
Year	# Faculty	# Staff	# Depts/Units	% STEM Faculty*	# Workshops**
2007	97	55	55	68.0%	13
2008	39	26	41	43.6%	7
2009	31	8	26	29.0%	9
2010	41	16	36	36.6%	12
TOTAL***	204	103	99	51.5%	41

* % STEM Faculty is the number of faculty in Biological and Physical Science Departments, divided by the Total number of faculty participants.
** Includes 1-session, 2-session, and special workshops or visits to search committees. 2-session workshops are counted as 1 workshop.
*** Unique participants; no names or departments/units are double-counted.

In our proposal, we set as a goal for UW-Madison STEM departments a 40% female class of new Assistant Professor hires by 2009/the end of the grant. We fell short of this goal in all years. However, we did see a steady improvement over the grant period, almost reaching our 40% goal even in a period of limited hiring:

New Assistant Professors in Biological & Physical Science Departments, UW-Madison			
Year	# Women	# Men	% Women
2007	10	34	22.7%
2008	12	37	24.5%
2009	16	29	35.6%
2010	12	20	37.5%

We published an article in *Academic Medicine* highlighting the important role that faculty search committee education can have on faculty diversity. See: Sheridan, Jennifer; Eve Fine; Christine Maidl Pribbenow; Jo Handelsman; Molly Carnes. 2010. "Searching for Excellence & Diversity: Increasing the Hiring of Women Faculty at One Academic Medical Center." *Academic Medicine*. 85(6):999-1007.

2. Continue offering *Enhancing Department Climate: A Chair's Role* workshops at UW-Madison

Our goal was to reach 70% of all physical and biological science departments with our *Enhancing Department Climate* workshops by the end of the grant period. We reached this goal in the Physical Sciences, but fell short in the Biological Science departments. The difficulties of working with the Biological Science departments were twofold:

1. We have not been able to make inroads in the School of Medicine and Public Health (SMPH), where many Biological Science departments are housed on our campus. The Clinical departments, in particular, have not had very much engagement with this initiative. However, the Department of Medicine (the largest department in the SMPH) recruited a new chair in December 2009. He did not attend a workshop, but one of his previous Division Heads did attend in the past. The new chair arranged for this Division Head to make a presentation about what was learned in the workshop to all 14 Division Heads in the department, including workshop materials. Hiring and promotion have increased in this department as a result of this new Chair's attention to climate issues: eight women (including two African American women) have been recruited to the department in one year, and three women in the department have obtained tenure.

2. We were making good progress in the College of Agricultural and Life Sciences (CALS), until a lawsuit by a CALS faculty member to obtain the survey results we produce as part of the workshop caused other department chairs in CALS to become cautious about participating until the lawsuit was resolved. Fortunately, it was resolved firmly in our favor . However, it was not enough to make up for time lost while the case was being decided.

STEM Departments Served by Enhancing Department Climate workshops				
Division	School/College	Total # Depts	# Participating	% Participating
Biological Science	(ALL)	50	16	32.0%
	CALS	14	5	35.7%
	L&S	3	0	0.0%
	SMPH	26	9	34.6%
	PHARM	1	1	100.0%
	VetMed	4	1	25.0%
	EDUC	1	0	0.0%
	IES	1	0	0.0%
Physical Science	(ALL)	19	14	73.7%
	CALS	2	1	50.0%
	L&S	8	5	62.5%
	ENGR	9	8	88.9%
Bio & Phys Science	(ALL)	69	30	43.5%

3. Continue disseminating our *Searching for Excellence & Diversity* workshops to institutions beyond UW-Madison

In 2005, prior to the PAID grant period, we presented our first *Implementing Workshops for Search Committees* workshop, a "train-the-trainer" version of our *Searching for Excellence & Diversity* workshop at UW-Madison. The *Implementing Workshops for Search Committees* workshop is designed to help a committed group of faculty and administrators at an institution

conduct training for faculty search committees, using our hiring workshop as a model. Over the course of our grant period, we presented our *Implementing Workshops for Search Committees* workshop at 12 outside sites, representing 16 different institutions:

Implementing Workshops For Search Committees: Dissemination to Other Campuses		
Host Institution	Date	Other Attendees
University of Wisconsin-Stout	February 2007	
Washington University	March 2007	
University of Wisconsin-Whitewater	September 2007	
University of Wisconsin-Eau Claire	January 2008	
Wayne State University	January 2008	
University of Alabama-Birmingham	March 2008	
Edgewood College (Madison)	June 2008	
University of Illinois-Urbana-Champaign	June 2008	
Purdue University	January 2009	
University of Delaware	February 2009	
Skidmore College	May 2009	• Union College
South Dakota School of Mines & Technology (SDSM&T)	January 2010	• Northern State University • South Dakota State University • North Dakota State University

Each site received the one-day workshop including materials, and an evaluation report after the workshop (with the exception of Purdue University, which produced their own evaluation report). We know that some of these campuses (SDSM&T, Purdue, Delaware, Washington University) have implemented some form of this training on their own campuses. Furthermore, Delaware has been considering disseminating the workshops to other institutions in their immediate area.

4. Create a dissemination plan for the *Enhancing Department Climate: A Chair's Role* workshops

In the original PAID proposal, we committed only to producing some *plan* for disseminating our *Enhancing Department Climate: A Chair's Role* workshops—perhaps in a model similar to what we do for the hiring workshops (e.g., a "train-the-trainer" style workshop.) In this area, we went beyond the grant proposal and not only created a plan for disseminating the *Enhancing Department Climate: A Chair's Role* workshops, but actually implemented that plan. On June 2, 2009, we performed a "train the facilitators" style workshop to participants from nine universities, most of them in the Big-10:

- Indiana University
- Purdue University
- University of Iowa
- North Carolina State University

- North Dakota State University
- Pennsylvania State University
- Ohio State University
- University of Minnesota
- University of California-Los Angeles

The 7.5-hour workshop was primarily presented by Dr. Jo Handelsman, the originator of the workshop concept and the original facilitator of the early workshops at UW-Madison. In addition to Dr. Handelsman's presentations, we had presentations by Jennifer Sheridan (climate findings from campus-wide surveys), Christine Pribbenow (the departmental climate survey used as part of the Chair Climate workshop, plus information about how to evaluate the effectiveness of the workshops), and Eve Fine (resources and case studies used in the workshops). A panel of previous workshop facilitators (Amy Wendt, Julia Koza, Nancy Mathews, and Jeffrey Russell) provided insights into working with department chairs and the typical reactions of chairs to the workshop content. Additionally, a panel of previous chairs who had participated in the workshop (Tom Grist, Phil O'Leary, Jeff Russell, Amy Wendt, and Bill Tracy) talked about the experience from their points of view, including concrete examples of the kinds of actions chairs take as a result of workshop participation. In total, three WISELI staff members and nine UW-Madison faculty members participated in the presentation of this workshop. One of these faculty, Jeff Russell, was subsequently invited to North Carolina State University to help that campus begin implementing these workshops on their own campus by coaching them through their first implementation of a climate workshop.

Our evaluation of the workshop indicated that the small group discussions were perhaps the most valuable part of the workshop for the participants, followed by the information provided by table facilitators (who were primarily past Climate Workshop facilitators.) Almost all respondents said that the workshop provided them with the resources to begin developing climate workshops on their own campuses, and 90% indicated that they were very likely or somewhat likely (compared to not at all likely) to implement climate workshops for department chairs at their home institutions. We were very pleased with the implementation of the workshop, the turnout, and the apparent uptake by the participating institutions.

5. Create new publications/brochures for distribution to UW-Madison and other institutions to use for their own ADVANCE-related efforts

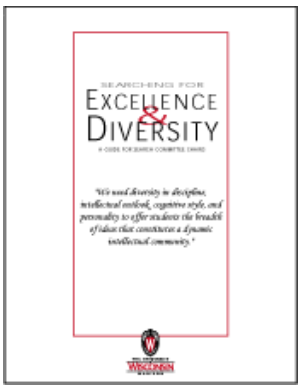
The specific items we proposed to produce are:

a. *Reviewing Applicants: Research on Bias and Assumptions* (Brochure)

This brochure, originally produced in 2003, was substantially revised in 2007 and is available at cost on our WISELI Online Bookstore (https://wisccharge.wisc.edu/wiseli/items.asp), and a free PDF is available as well (http://wiseli.engr.wisc.edu/docs/BiasBrochure_2ndEd.pdf). We removed the UW-Madison logo to make the brochure more generic for use at other institutions. We replaced the stock-photo picture on the front cover with a photograph we commissioned. We chose a successful African American woman faculty member as our subject in order to provide a counter-stereotype image (Dasgupta and Greenwald, *J Pers Soc Psychol*, 2001).

This brochure is primarily targeted to members of faculty search committees, for use during a search to educate the committee members about unconscious bias and to provide tips for minimizing the influence of these biases during the search.

b. Guidebook for Faculty Search Committees (Booklet)



The handbook *Searching for Excellence & Diversity: A Guide for Search Committees* has been revised, into two editions. For both editions, the following updates have been made:

- The title and focus of the original guide has been changed from focusing only on search committee chairs, to targeting all members of a faculty search committee.
- Recruiting suggestions have been substantially updated to include new advice and recommendations. Many of these additions have come directly from experiences reported by faculty participants in the *Searching for Excellence & Diversity* workshops.
- The recruiting resources have been substantially enhanced. We supplement the materials in the printed book with a webpage that we will maintain, containing a more comprehensive listing of recruiting resources. This will allow us to keep the recruiting resources up to date and will provide more effective access to users. This new online resource is available here: http://wiseli.engr.wisc.edu/recruitingresources.php .
- Literature on unconscious bias has been updated.
- The section on interviewing now includes suggestions of good questions to ask during the interview, in addition to the questions you should not ask. New material also includes advice regarding telephone/Skype interviewing and interviews at professional conferences. Our experiences delivering the *Implementing Workshops for Search Committees* at other institutions provide the basis for these additions.
- A new section entitled "Closing the Deal" has been added. This includes material on communicating and negotiating with the candidate selected for a job offer. It also includes advice and information on dual career hiring.

One edition of the booklet will look similar to the past version, and is intended for use at UW-Madison. Resources and advice specific to UW-Madison (due to University policies or state laws) remain in this booklet, and printing and distribution will continue as in the past via the WISELI Online Bookstore. The PDF of the Wisconsin version will be available here: http://wiseli.engr.wisc.edu/docs/SearchBook_Wisc.pdf .

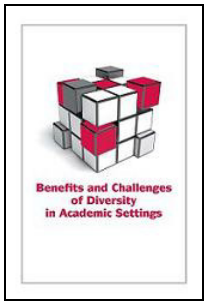
A second version has been created for audiences outside of Wisconsin; Wisconsin-specific advice and recommendations have been removed. This resource will be

published through Lulu.com and made available to universities either through the publisher or we will purchase the items and re-sell via our website. It will also be available as a free PDF here: http://wiseli.engr.wisc.edu/docs/SearchBook_US.pdf . This version is in process, and final ordering details should be available in Summer 2011.

c. Hiring Dual-Career Couples: Promises, Pitfalls, and Best Practices (Brochure)

This brochure was not completed. Material that includes advice for hiring dual career couples is instead incorporated into the revision of the *Searching for Excellence & Diversity Guide for Search Committee Chairs*, see above. We rely heavily on the excellent publication by Londa Schiebinger and colleagues, *Dual-Career Couples: What Universities Need to Know* (http://www.stanford.edu/group/gender/ResearchPrograms/DualCareer/DualCareerFinal.pdf). Publication of this report supercedes the need for this brochure.

d. *Benefits and Challenges of Diversity* (Booklet)



This booklet is adapted from an essay of the same name that was developed as part of our *Enhancing Department Climate* workshops for chairs. The purpose of the booklet is to provide department chairs with evidence-based arguments supporting the goal of increasing faculty diversity, while understanding the challenges associated with increased diversity of a departments' faculty. This booklet updates the literature cited in the original essay and publishes it in an easy-to-read format. Topics covered include:

- Benefits of diversity for teaching and research
- Benefits of a diverse faculty for students
- Challenges of diversity, including overload of underrepresented faculty, isolation, and unwelcoming climates
- The influence of unconscious biases and assumptions on interactions with underrepresented faculty
- Tips for reaping the benefits of diversity while minimizing the challenges

This booklet was originally developed to target department chairs, but it can also be used in more general discussions about diversity with all University faculty. We make this booklet available at cost via the WISELI Online Bookstore. A free PDF is available online at: http://wiseli.engr.wisc.edu/docs/Benefits_Challenges.pdf .

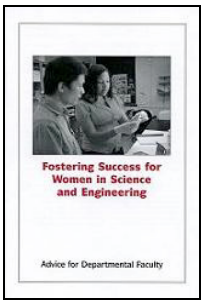
e. Best Practices: Tips for Chairs on Improving their Departmental Climate (Brochure)

This new brochure targets department chairs, and is based on research and advice literature, survey responses, and discussions from our *Enhancing Department Climate: A Chair's Role* workshops. The brochure contains such topics as:

- What is climate?
- Common concerns revealed in campus climate surveys—and suggestions for addressing them
    - Enhance basic manners—respect, consideration, and politeness
    - Improve communication
    - Build a sense of community
    - Engage everyone in the life of the department
    - Promote professional development
    - Recognize and value the work of department members
    - Build sensitivity
    - Enhance work/life balance
    - Counter language and behaviors that are demeaning, sexualizing, condescending, and/or illegal

The brochure is available on the WISELI Online Bookstore site. A free PDF is available on our website as well (http://wiseli.engr.wisc.edu/docs/ClimateBrochure.pdf).

f. Best Practices: Tips for Faculty on Improving their Departmental Climate (Booklet)



This piece is a substantially revised version of our essay "Sex and Science" that was produced in 2005 as an addendum to our "More Women in Science" piece in *Science*. The booklet targets all faculty members, male and female, and covers such topics as:

- What is the issue: the underrepresentation of women in science
- Four main factors associated with the underrepresentation:
  - Subtle bias
  - Discrimination and harassment
  - Lack of role models and encouragement
  - Work-life balance issues

For each factor, a brief description of the issue is followed by a "What to do" section that outlines specific actions faculty members can take to improve departmental climate. Actual quotations from interview and survey data are provided to illustrate the issues women faculty face.

The brochure is available on the WISELI Online Bookstore site. A free PDF is available on our website as well (http://wiseli.engr.wisc.edu/docs/FosteringSuccessBrochure.pdf).

g. *Advancing Women in Science and Engineering: Advice to the Top* (Brochure)

This brochure is targeted to department chairs and other administrative leaders. The content originated from the *Enhancing Department Climate: A Chair's Role* workshops, as well as current research and advice literature. Material is also based on the essay "Advice to the Top: Top 10 Tips for Academic Leaders to Accelerate the Advancement

of Women in Science and Engineering" previously available on the WISELI website, and written as a guide for high-level academic administrators immediate following the controversy surrounding Dr. Lawrence Summers's remarks at a conference in 2005.

The brochure is available at cost on the WISELI Online Bookstore, and a free PDF is available also (http://wiseli.engr.wisc.edu/docs/AdviceTopBrochure.pdf).

h. Evaluating Candidates for Tenure: Research on Bias and Assumptions (Brochure)

This brochure was not completed. We still have plans to produce this brochure. It will be modeled on the "Reviewing Applicants" brochure, but will focus on advice relevant to members of tenure and promotion committees. Vice Provost for Faculty and Staff Steve Stern is leading a study group around the tenure process at UW-Madison ("tenure conversations.") One recommendation of his group is to mentor "key social actors" in the process, which includes "department chairs, faculty and administrative staff responsible for tenure dossier preparation; academic associate deans… who monitor the process at the school/college level; and divisional committees." He has agreed to include our work in whatever educational efforts he designs for these targeted groups. This provides us with a ready-made test group for the brochure.

i. Achieving Tenure: A Guide for Women and Minorities
and
j. Nominations for Major Awards and Honors

We originally proposed the creation of two brochures targeted to women and under-represented minority faculty. A version of the proposed "Nominations for Major Awards and Honors" brochure had been developed and was available on the WISELI Online Bookstore website for several years. We found that no one ever purchased that brochure, and it was never used or requested on our campus. Furthermore, after this brochure was developed, the RAISE Project developed a website with much more specific awards information than we could ever hope to convey in a short brochure.

We determined that printed brochure materials targeting individual women and/or minority faculty members may not be the best way to provide advice and information, as there is no formal workshop or other institutional effort in place to distribute the materials. The internet might be a better medium for getting this kind of information out to individuals interested in maximizing their own chances at earning awards and/or earning tenure. Therefore, for both the "Achieving Tenure" and "Awards" brochures, we have created webpages that summarize advice and link to resources of interest to under-represented junior faculty, and women faculty seeking information about awards and honors. We created a new, top-level menu item on our website "Advice" to make it easy for faculty and other website visitors to find these resource pages, and have been populating them with links and information.

The website "Advancing Your Career Through Awards and Recognitions" is available here: http://wiseli.engr.wisc.edu/advice/awards.php . The website "Achieving Tenure: A Guide for Women and Minority Faculty" is available here: http://wiseli.engr.wisc.edu/advice/tenure.php .

6. Disseminate the new brochures and booklets to other institutions

In the proposal, we suggested several ways in which we would distribute the brochures we planned to develop beyond UW-Madison. By the end of the grant, our goal was to reach 100 different campuses with our materials—a goal we met and surpassed. We know of 117 individual colleges, universities, or university systems that have received one or more of our publications (hiring brochure, hiring guidebook, department chair climate brochure, etc.). Additional campuses have received our materials through distribution at meetings and conferences. Other scientific institutions (national laboratories, corporations, professional societies) have also received the materials. In 2008, we discovered an additional mode of dissemination that we had not thought to document before now—monitoring the use and inclusion of our materials into materials produced on another campus, or a link to our materials directly from another university's website. We are including these documented instances of dissemination in our listing below, and we monitor such linkages annually.

(1) Distribute brochures/publications at national conferences.

We planned to attend at least three national conferences during the course of the grant, discussing our workshops and materials available to other campuses. The four conferences we attended were:

- WEPAN Annual Conference. Orlando, FL. 2007.
- ASEE Annual Conference. Honolulu, HI. 2007.
- ASEE Annual Conference. Pittsburgh, PA. 2008.
- NSF/AWIS ADVANCE PI Meetings. Washington, DC. 2009.

In addition to these conferences, we also distributed our materials and discussed our workshops at a number of invited talks in different forums. These include:

- In collaboration with UC-Irvine, we sent 300 copies of the "Reviewing Applicants" brochure to the SET-Routes conference in Heidelberg, Germany in May 2007. All 300 brochures were distributed there to institutions from around the world.
- Molly Carnes distributed materials to attendees at the "Women's Academic Advancement: The Influence of Language" session at the annual meetings of the American Association of Medical Colleges in November 2007, and attendees of the "National Leadership Workshop on Mentoring Women in Biomedical Careers" held at the National Institutes of Health in late November 2007. Approximately 50 brochures were distributed at these two venues to a variety of medical school faculty and administrators.

- Jennifer Sheridan distributed brochures at the University of Minnesota-Duluth, where she gave an invited talk and met with faculty, staff and administrators. (February 2008).
- Jennifer Sheridan distributed brochures at the National Institutes of Health, where she gave an invited talk at the "Women in Biomedical Research: Best Practices for Sustaining Career Success" workshop. (March 2008).
- Molly Carnes gave brochures to faculty and administrators at the University of Virginia, where she presented two invited talks. (March 2008).
- Amy Wendt provided brochures to Engineering faculty at the University of Maryland-College Park, where she was an invited speaker. (May 2008).
- Eve Fine provided copies of our brochure and guidebook when participating on a faculty hiring panel at North Carolina State University. (October 2008).
- Molly Carnes distributed brochures to attendees at the West Virginia Higher Education Policy Commission's workshop entitled "Building Diversity in Higher Education: Strategies for Broadening Participation in the Sciences and Engineering." (October 2008).
- Many of our materials were distributed at the "train the facilitators" workshop we held in June 2009 (see item #4 above, "Create a dissemination plan for the Enhancing Department Climate: A Chair's Role workshops."). Nine major research universities received our materials on departmental climate, and some also received hiring materials.
- Jennifer Sheridan distributed brochures at the University of Virginia, where she gave an invited talk (March 2009).
- Molly Carnes gave brochures to faculty and administrators at the University of Pittsburgh, where she was an invited speaker (April 2009).
- Jennifer Sheridan distributed brochures as part of an invited talk at Rutgers University (April 2009).
- Molly Carnes presented two talks at the University of Pittsburgh, where she also distributed WISELI materials (May 2009).
- Jennifer Sheridan provided brochures and guidebooks to several University of Wisconsin System schools at the 2009 UW System Women & Science Program Spring Conference, where she was the keynote speaker (May 2009).
- Eve Fine and Jennifer Sheridan distributed "Reviewing Applicants" brochures and "Searching for Excellence" guidebooks at the Greater Chicago Midwest Higher Education Recruitment Consortium (HERC) Symposium in Chicago, IL, where they were invited speakers (along with a team from the University of Illinois-Chicago. May 2010).
- Molly Carnes distributed copies of each brochure ("Reviewing Applicants", "Advice to the Top", "Benefits and Challenges", and "Enhancing Department Climate") to hosts at Stanford University Medical School, where she was an invited speaker (October 2010).
- Vicki Bier, former WISELI Leadership Team member, distributed copies of "Reviewing Applicants" to audience members at the Institute for Operations Research and the Management Sciences Annual Meeting in Austin, TX, where she was an invited panelist (November 2010).

- Jennifer Sheridan distributed "Benefits and Challenges of Diversity" and "Enhancing Department Climate" brochures to the faculty at North Dakota State University, where she gave an invited talk. (November 2010).

(2) Update the WISELI website to include a user-friendly online ordering system for the products.

The WISELI website is one of our primary dissemination tools, and it has a high number of visitors. Despite mostly positive feedback on the site, we had received messages indicating that it was unclear how exactly to order our brochures and guidebooks. Thus, in 2007 we developed the "WISELI Online Bookstore." This secure website allows visitors to order our products either with a credit card or via an invoice. It is much clearer and also allows us to track with more precision exactly how many of our publications are ordered by other campuses. This work was completed in 2007. In 2009, we revamped our entire website, and the WISELI bookstore was also updated with a new logo:

and new link: https://charge.wisc.edu/wiseli/items.asp . This mechanism appears to work well. Over the course of the grant, via our WISELI Online Bookstore, we sold:

- 9,975 "Reviewing Applicants" brochures
- 345 "Searching for Excellence & Diversity" guidebooks
- 675 "Enhancing Department Climate" brochures
- 75 "Benefits and Challenges" brochures
- 50 "Advice to the Top" brochures

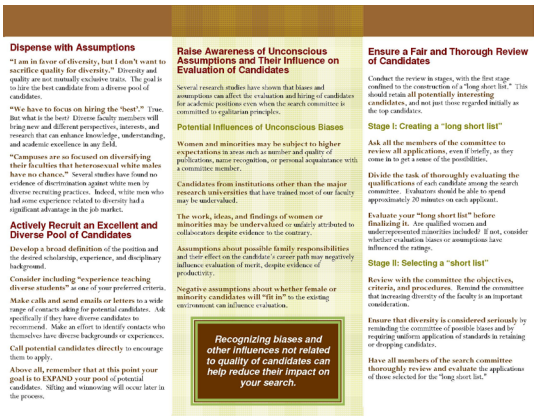
(3) Work with the University of Michigan and the University of Washington to use the materials in their PAID-funded workshop activities.

Both the University of Michigan and the University of Washington have received copies of the "Enhancing Department Climate" brochures completed in 2008. The University of Washington used both the department climate brochure, as well as the "Reviewing Applicants" brochure at their LEAD workshop in Fayetteville, Arkansas (June 2009).

(4) Monitor the use of WISELI materials on websites and within materials produced by other universities.

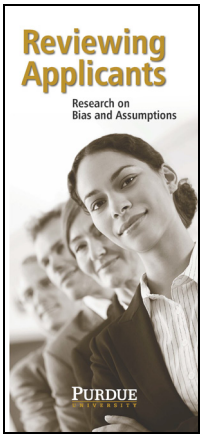
- 12 universities have a link to our materials from their websites, and/or cite one of our publications.
- 33 universities/organizations have taken our materials and added them directly into their own publications, websites, or presentations, and/or asked for permission to do so. We developed a formal copyright request process to ensure that our work is cited properly. Some examples of this work include:

University of Wisconsin-Eau Claire. Adapted portions of our Search Guidebook into a brochure used on their own campus.

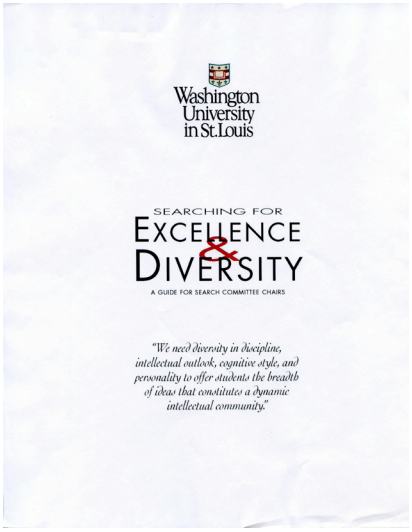


North Dakota State University. Used entire "Reviewing Applicants" content in their own booklet, created in the style of their campus.

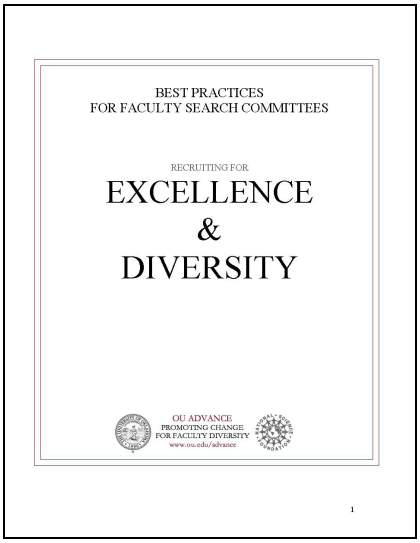
Purdue University. Used entire "Reviewing Applicants" content in their own booklet, created in the style of their campus.

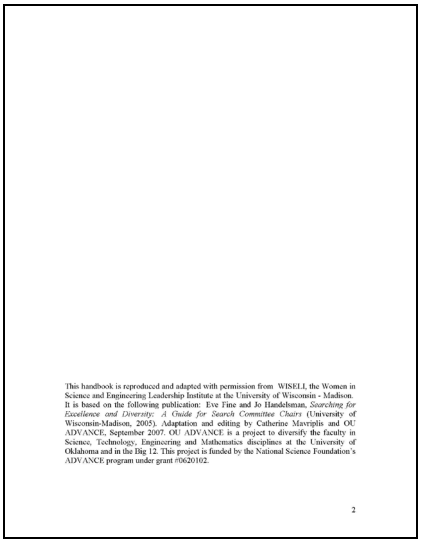


Washington University in St. Louis. Developed their own Search Guidebook based on content from ours.

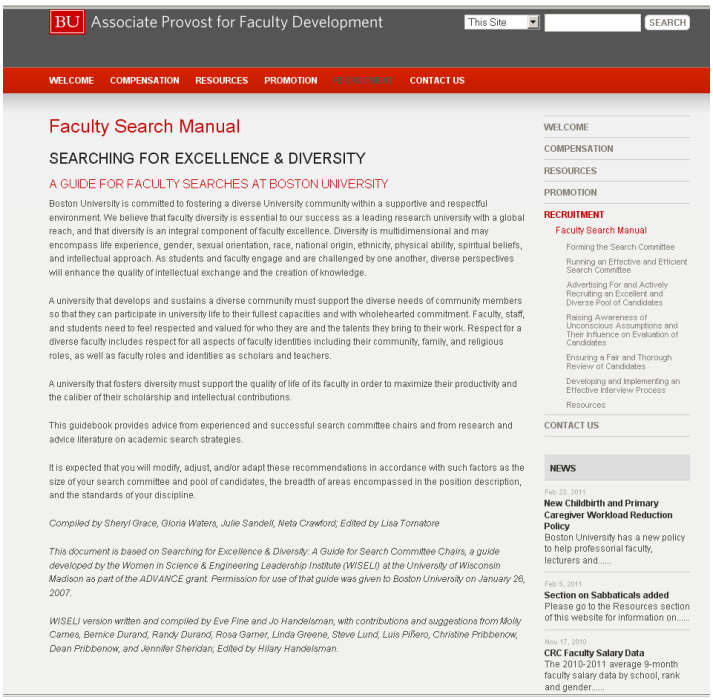


University of Oklahoma. Developed their own Search Guidebook based on content from ours.

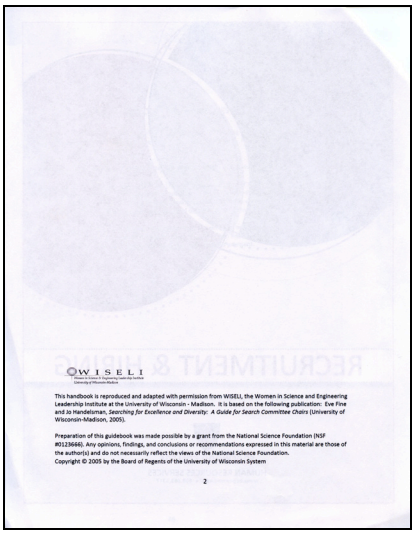




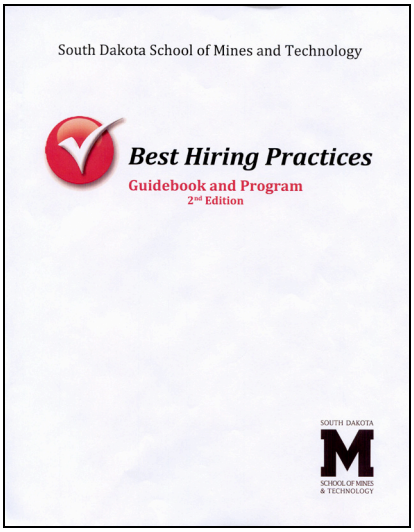
Boston University. Developed their own online Search Guidebook (http://www.bu.edu/apfd/recruitment/fsm/) based on content from ours.

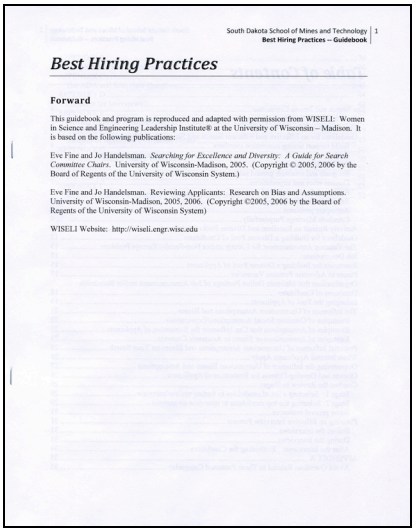


Edgewood College. Developed their own Search Guidebook based on content from ours.

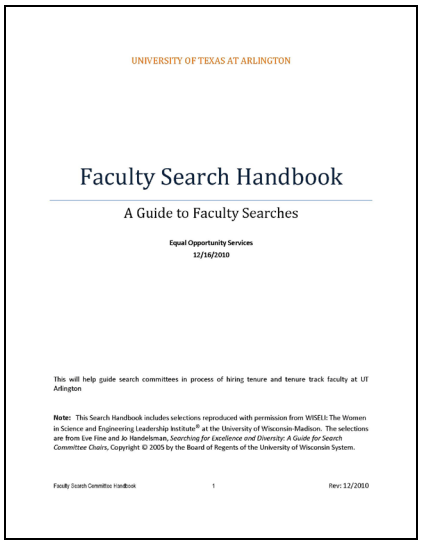


South Dakota School of Mines and Technology. Developed their own Search Guidebook based on content from ours, and also the Recruiting Applicants brochure.





University of Texas at Arlington. Developed Faculty Search Handbook that incorporates portions of our Guidebook.



The list of campuses that we know have received or used at least one of these brochures/ guidebooks over the course of the grant include:

Allegheny College (’07,‘08)	Michigan Technological University (’10)	University of Maryland-Baltimore County (’07)
American University (’10)	Minnesota State Colleges (’10)	University of Massachusetts-Boston (’10)
Boise State University (’09,’10)	Mississippi State University (’07)	University of Medicine and Dentistry of New Jersey (’09,’10)
Boston University (’07,’08)	North Carolina State University (’08,’09.’10)	University of Michigan (’08,’10)
Brandeis University (’10)	North Dakota State University (’09,’10)	University of Minnesota (’07,‘09)
Bridgewater State University (’10)	Northeastern University (’09)	University of Minnesota-Duluth (’08)
Bristol Community College (MA) (’07)	Northwestern University (’08,’10)	University of Missouri-Columbia (’09)
Brown University (’07)	Ohio State University (’07,’09,’10)	University of Nebraska (’08,’09,’10)
California State Polytechnic University (’09)	Onondaga Community College (NY) (’07)	University of Nevada-Las Vegas (’09)
Case Western Reserve University (’08)	Oregon Health and Science University (’07)	University of North Carolina-Charlotte (’08)
Central European University (’10)	Pennsylvania State University (’07, ‘09)	University of Northern Colorado (’09,’10)
Columbia University (’09)	Purdue University (’07,’08, ‘09)	University of Notre Dame (’10)
Community College of Spokane (WA) (’07)	Rice University (’08)	University of Oklahoma (’07,’08)
Danville Area Community College (IL) (’10)	Richland Community College (IL) (’10)	University of Ottawa (’09)
Delaware County Community College (PA) (’09,’10)	Rochester Institute of Technology (’09,’10)	University of the Pacific (’08)
DePaul University (’10)	Rutgers University (’07,‘09)	University of Pennsylvania (’08,’10)
Drexel University (’07)	Skidmore College (’09)	University of Pittsburgh (’09,’10)
Eastern Washington University (’08)	South Dakota School of Mines & Technology (’10)	University of South Florida (’09)
Edgewood College (’08,’10)	Southern Methodist University (’10)	University of Texas-Arlington (’10)
Florida Agricultural & Mechanical University (’09)	SUNY-Oneonta (’08)	University of Texas-El Paso (’07,’10)
Florida International University (’09)	Syracuse University (’07)	University of Texas-Southwestern (’08)

Florida State University (’09)	Texas A&M University (’09)	University of Virginia (’08, ’09,’10)
Framingham State University (’09)	Tulane University (’07)	University of Washington (’08)
George Washington University (’10)	Union College (’09)	University of Wisconsin-Eau Claire (’07,‘08)
Harper Community College (IL) (’07)	University of Alabama (’10)	University of Wisconsin-La Crosse (’08)
Harrisburg University of Science and Technology (’10)	University of Alabama-Birmingham (’08)	University of Wisconsin-Platteville (’09)
Harvard Medical School/ Children’s Hospital Boston (’07); Dana Farber Cancer Institute (’09); Mass General Hospital (’09); Brigham & Women’s Hospital (’10)	University of Arizona (’09)	University of Wisconsin-River Falls (’09)
Harvey Mudd College (’10)	University of Arkansas (’09)	University of Wisconsin-Stevens Point (’09)
Hebrew University (’08)	University at Buffalo (’08)	University of Wisconsin-Stout (’07,’08,’09,’10)
Hood College (’10)	University of California-Irvine (’10)	University of Wisconsin-Superior (’10)
Illinois Institute of Technology (’10)	University of California-Los Angeles (’07, ‘09)	University of Wisconsin System (’08,’10)
Indiana University (’07,‘09)	University of Chicago (’07,’10)	Utah State University (’07)
Iowa State University (’08)	University of Delaware (’09,’10)	Virginia Tech (’07)
Johns Hopkins University (’10)	University of Delhi (’08)	Washington University in St. Louis (’07,’10)
Loyola Marymount University (’07,’08,’10)	University of Florida (’09)	Wayne State University (’08,‘09)
Loyola University Chicago (’10)	University of Illinois-Chicago (’07,’10)	West Virginia University (’09)
Marshall University (’07)	University of Illinois-Urbana Champaign (’07, ‘08)	Williams College (’10)
Miami Dade College (’10)	University of Iowa (’07, ’08, ’09,’10)	Wright State University (’10)
Michigan State University (’07)	University of Lethbridge (’07)	Yale University (’08,’09,’10)

Additional organizations have also received our materials:

- Association of Universities for Research in Astronomy (AURA)
- Council of Colleges of Arts & Sciences
- US Department of Labor

- Space Telescope Science Institute
- Association of American Medical Colleges
- Aargon National Laboratory
- Woods Hole Oceanic Institute
- RAND Corporation
- Lawrence Berkeley National Laboratory
- Dupont Corporation
- American Statistical Association
- Society for Industrial and Applied Mathematics
- American Chemical Society
- American Geological Union

Conclusion

In summary, through the PAID award, WISELI has continued to have a positive impact on the participation and advancement of women in academic science and engineering—at UW-Madison and beyond. The grant has allowed us to continue conducting workshops on hiring and climate at our own campus. This experience is vital to the development and testing of the approaches and materials we offer to other institutions wishing to engage in institutional transformation, and has directly resulted in one peer-reviewed article documenting our success. Further, the grant has facilitated the dissemination of our evidence-based information to over 100 institutions of higher education in the U.S., through written materials (brochures and booklets), presentations, consultation, "train-the-trainer" style workshops, and site visits.

PAID Financial Report

2007-2010 Financial Report, PAID (prepared 3/3/2011)

	Budget	Actual 2007	Actual 2008	Actual 2009	Actual 2010	Total
Income						
NSF PAID	$499,991	$499,991	$0	$0	$0	$499,991
Salaries and Fringes						
Directors	$97,571	$7,801	$51,626	$47,531	$11,034	$117,992
WISELI Staff	$153,907	$18,594	$37,573	$44,558	$18,381	$119,106
Fringe Benefits + Tuition	$85,502	$9,898	$34,301	$38,204	$13,297	$95,700
Travel	$3,150	$860	$6,213	$2,354	-$132	$9,295
Supplies and Equipment	$0	$143	$461	$0	-$350	$254
Overhead	$159,861	$17,530	$60,956	$60,415	$18,720	$157,621
Total Income	$499,991	$499,991	$0	$0	$0	$499,991
Total Expenditures	$499,991	$54,827	$191,130	$193,062	$60,950	$499,970

WISELI Research/Evaluation Report:

Carnes, Molly. June 28, 2010. Advancement of Women in STEMM: A Multi-Level Research and Action Project. Annual Report, 2010.

CENTER FOR WOMEN'S HEALTH RESEARCH
University of Wisconsin-Madison

June 28, 2010

National Institute of General Medical Sciences
c/o Division of Extramural Activities Support, OER
National Institutes of Health
6705 Rockledge Drive, Room 2207, MSC 7987
Bethesda, MD 20892-7987

RE: NIH Grant Number R01GM088477-02

Dear Sir/Madam:

Enclosed, please find our progress report for NIH grant number R01GM088477-02, "Advancement of Women in STEMM: A Multi-level Research and Action Project".

On behalf of the investigators, I'd like to thank the NIGMS for supporting this important research. The project is going well and on schedule. We have achieved a 54% response rate on a baseline Worklife Survey of University of Wisconsin-Madison faculty, and leveraged support from the School of Medicine & Public Health and the Provost's office for this survey.

Once again, we appreciate your support.

Sincerely,

Molly Carnes, MD, MS
Professor, Departments of Medicine, Psychiatry, and Industrial & Systems Engineering
Director, Center for Women's Health Research
Co-Director, Women in Science and Engineering Leadership Institute (WISELI)
University of Wisconsin-Madison

700 Regent Street, Suite 301
Madison, WI 53715-2634
Phone: (608) 263-9770
Fax: (608) 265-6423
www.womenshealth.wisc.edu

PROGRESS REPORT -2010 Carnes, Mary (Molly) L.

There has been no change in the Specific Aims proposed in the original grant application. We report progress on all three Specific Aims since funding began October 1, 2009.

Specific Aim #1. Clarify the relationships among department climate, academic productivity, job satisfaction, intent to leave, and attrition for male and female faculty members.
Studies, Results, and Plans: We have begun gathering the productivity and attrition data that will be linked to our climate survey data in order to estimate models of these relationships. Data for faculty patents and publications is complete. Data on faculty grants and attrition is still being collected. An unexpected windfall occurred in Fall, 2009 when the Office of the Provost asked us, through the Women in Science and Engineering Leadership Institute (WISELI), to survey UW-Madison faculty. We did not expect to run an all-faculty survey until the end of the grant, but because of the Provost's interest, we were able to get a survey out in the Spring of 2010. This provides baseline data closer to our intervention than the original baseline survey from 2006 that we were planning to use. Some surveys are still trickling in, but we have obtained a faculty response rate at his time of 54%. This is a real boon to both Specific Aim #1 and Specific Aim #2. Plans for the current year are to analyze the baseline data and add it to data from the first two waves for developing the proposed structural equation models to examine the relationships indicated above.

Specific Aim #2. Test the impact of a Bias Literacy Workshop on faculty: (a) motivation to respond without prejudice, (b) equity self-efficacy, and (c) positive equity outcome expectations; and department climate.
Studies, Results, and Plans: Work on this aim has focused on: 1) developing and refining questionnaires, 2) meeting with 90 departments to introduce the research, and 3) iterative prototyping of the workshop itself. We held two focus groups in Fall, 2009 with 5 faculty members (two senior male faculty in the College of Engineering, a mid-career female faculty member in the School of Medicine and Public Health, a senior male faculty member in the School of Education, and a female director of a large STEMM education program). One was African American and the others white. The content of the discussion was examined and used to inform development of questions. We then developed and piloted our questionnaires several times (with IRB approval) with groups of non-faculty who are in STEMM and several faculty members from departments not involved in this study.

Dr. Carnes has personally presented the scope of the R01 at Dean's meetings of the Chairs in the School of Medicine and Public Health, the College of Engineering, the College of Letters and Science, the School of Pharmacy, and the School of Veterinary Medicine. These have been followed by presentations at the individual faculty meetings of 87 of the 90 involved departments. We believe that this face-to-face meeting with faculty helped us achieve a high survey response rate and anticipate that it will increase the workshop participation rate.

IRB approvals have been obtained for both pilot and actual workshops. We have presented 3 pilot Bias Literacy Workshops, now entitled "Breaking the Prejudice Habit Through Bias Literacy". One was at the University of Virginia, one with the Facilities and Management Department at the UW-Madison, and one with the UW Department of Community and Environmental Sociology. The research team has made revisions based on experiences with, and feedback from, these pilots so that by the time we do our first official workshop the curriculum will be as standardized as possible. We are planning one more pilot with some faculty in early July, and then we will convene our first real workshop at the end of July or August.

We submitted a proposal to NIGMS for a competing revision to add a qualitative study to Specific Aim #2. This would include participant observation of the workshops and in-depth, longitudinal interviews with faculty in selected departments. We are awaiting notice of funding. We have a proposal pending for internal funding to begin this work as well.

Plans for this coming year are to begin delivering the workshops to departments and collecting the planned individual-level data.

Specific Aim #3. Examine receptivity and resistance to an equity intervention (Bias Literacy Workshop) through conversation analysis of verbal and non-verbal cues.
Studies, Results and Plans: The two pilots at the UW-Madison were video and audio taped.

During the first year of the NIH project on Bias Literacy, the conversation analysts videotaped, analyzed and evaluated the two UW pilot sessions for verbal and non-verbal behaviors of participants. After digitizing videotapes of two 2.5 hour pilots, Cecilia Ford and her grad students analyzed five hours of workshop interaction to arrive at focused feedback on verbal and non-verbal displays of receptivity and resistance by participants. The findings were reported to the larger team and have contributed to revisions in the workshop design. For example, the original case studies included some humor (e.g., a request for proposals from the National Endowment for Super Science). It appeared that the humor was confusing – the subject of gender equity is serious, why introduce humor? This case study now indicates that the request for proposals comes from the NIH. The tapes also indicated that participants are most engaged when they are actively working in pairs or small groups. Thus, we have adjusted the workshop curriculum to incorporate more of these exercises. Dr. Ford plans to analyze these tapes in considerably more detail to assist in production of anonymized ('cartoonized') video clips to train future leaders and facilitators.

HUMAN SUBJECTS
We have submitted a protocol to the IRB for the new qualitative arm of the study, which entails participant observation during the workshops and in-depth, longitudinal interviews with faculty in selected departments. This qualitative arm will have a separate informed consent form.

Dr. Carol Isaac will take detailed observational field notes on verbal and non-verbal interactions/responses during the 2.5-hour Bias Literacy Workshops. Four to six months following the workshop, e-mail invitations for interviews will be sent to a theoretical sample of approximately 6-8 faculty in a single department. Faculty selected will be from departments where the investigators have a sense from the 3-month questionnaires (supported by workshop participant observation) that some change is occurring. Faculty in the paired control department will also be selected for interview invitation. Invitation will come by email and be repeated once if no response is received. If an invited faculty member does not respond or declines to be interviewed, another faculty member in that department will be selected for invitation. The interview will begin with an open-ended query asking participants to talk about their background and role in the department. Subsequent questions will ask about perceptions of individual and departmental gender bias including some specific examples such as describing a faculty meeting. The interviews will likely take 30-60 minutes. These same participants will be re-interviewed, if they accept, 12 months after initial interviews. All interviews will be digitally audio-recorded and transcribed. If a participant asks for the recording to stop during the interview, or if she/he requests that a portion of the recording be erased upon completion of the interview, Dr. Isaac will comply with this request. After these recordings are transcribed and anonymized, participants will be sent their interview transcripts for their review (member checking). At that time, they may also remove portions of their transcript. All transcripts will be anonymized for future workshop dissemination, development, and publications. Only Dr. Isaac and her authorized students will have access to the files, which are stored in a password protected computer.

This research adds essentially no additional risks to the parent grant. It will provide rich, thick descriptions of how participation in the Bias Literacy Workshop is affecting attitudes, beliefs, and behaviors at the individual and departmental level.

R01 DK034108 (P Farrell) 1/1/07–12/31/11 0.9 academic
NIH/NIDDK $377,862
Pulmonary Benefit of Cystic Fibrosis Neonatal Screening
This is a comprehensive, randomized clinical trial and research program addressing the hypothesis that early diagnosis of cystic fibrosis through neonatal screening will be medically beneficial and cost-effective without major risks. My role on the project is to develop an actuarial model that measures the cost-effectiveness of screening for cystic fibrosis.
ROLE: Co-Investigator
OVERLAP: None

Mentored Research Scientist (NK Stout) 1/1/2010-12/31/2014 0.25 academic (in kind)
American Cancer Society $666,319 (Total)
Community Breast MRI Screening: Clinical and Economic Implications
This proposal is a mentored career development award to study the uptake and outcomes associated with screening breast MRI use in a community setting.
ROLE: Mentor
OVERLAP: None

1R01GM088477-01 (Carnes) 9/30/2009 – 8/31/13 0.90 academic (in kind)
National Institutes for Health $1,323,273
Advancement of Women in STEMM: A Multi-Level Research and Action Project
The proposed research will clarify the relationships among department climate, academic productivity, job satisfaction, intent to leave and attrition for male and female faculty members and test the impact of a Bias Literacy Workshop on faculty motivation to respond without bias.
ROLE: Faculty
OVERLAP: None

SHERIDAN, JENNIFER

ACTIVE

0619979 1/1/2007 – 12/31/10 6.00 calendar
National Science Foundation $499,991
Partnerships for Adaptation, Implementation, and Dissemination (PAID)
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This study targets UW STEMM departments to test the impact of a Bias Literacy Workshop on faculty motivation to respond without bias, equity self-efficacy, positive equity outcomes expectations, and department climate. It will also examine receptivity and resistance to a Bias Literacy Workshop through verbal and non-verbal cues.
ROLE: Analysis and workshop implementation
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The Tenure Process and Extending the Tenure Clock: The Experience of Faculty at One University

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Tenure clock extension policies are increasingly available for faculty who need extra time granted on their 'clock' due to special circumstances, such as family responsibilities or health issues. At the University of Wisconsin-Madison, the formal policy has been available to faculty for over 10 years and is the focus of study by researchers at the Women in Science and Engineering Leadership Institute. The following report is informed by data collected through a campus-wide survey of faculty, as well as from the responses to questions during individual interviews with a sample of female faculty. The survey results suggest that in general, men are more likely to be satisfied with the tenure process, to understand the criteria to achieve tenure, and to feel supported by their department. At the same time, both men and women who used the tenure clock extension policy were equally less satisfied with the tenure process than their counterparts. In-depth interviews give voice to some of these findings. We hypothesize that the life event that led to extending the faculty members' clocks exacerbated their dissatisfaction with the process of achieving tenure.
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Keywords: tenure process; tenure clock extension policy; gender differences; women in academia; work-life balance

Introduction

A number of universities have instituted various family-friendly polices that are intended to counteract any adverse effects that family responsibilities may have on faculty members' satisfaction, achievement of tenure, and retention.[1,2] Sullivan *et al*. (2004), in a study of work-family polices for academics, found that 110 of the 255 institutions (43%) they surveyed had a formal, institution-wide policy to allow 'a tenure-track faculty member to have a temporary pause in the tenure clock to accommodate special circumstances' (25). Tenure clock

extension policies allow both female and male tenure-track faculty extra time during their probationary period to meet the demands of scholarship required by their departments and institutions when health or family commitments significantly impact progress towards tenure. The tenure clock extension policy is one way in which UW-Madison administrators hope to mitigate the effects of life circumstances that can interfere with the tenure process.

The Women in Science and Engineering Leadership Institute (WISELI), a research centre based at UW-Madison, was created to promote gender equity in the faculty and administration, especially for women in the sciences and engineering. Towards this end, WISELI staff develop various programmes for faculty and academic staff and also study institutional policies and practices as a means to address inequities and improve satisfaction of campus employees.

WISELI researchers used two sources of data, a survey of all faculty and individual interviews with female faculty, to describe various aspects of the tenure process. Specifically, we explored tenure evaluation criteria, use of the tenure clock extension policy, access to information and support, and satisfaction with the tenure process to identify specific aspects that male and female faculty may experience differently. Our results suggest that male faculty are more likely to be satisfied with the tenure process, to understand the criteria to achieve tenure, and to feel supported by their department during the tenure process. Interestingly, we found that both men and women who chose to extend their tenure clocks were equally less satisfied with the tenure process as compared to their counterparts. In the remainder of the article, we discuss the research study and present these and other findings about faculty experiences of the tenure process and use of the tenure clock extension policy at UW-Madison.

Background

There is no shortage of statistics to illuminate the disparities in the numbers of female and male faculty working in American institutions of higher education today. These differences are even more striking in light of data that suggest nearly equal representation of men and women at both the undergraduate and graduate levels. In the years 2001–2002, women made up approximately 57% of the undergraduate student enrollment at Title IV, post-secondary institutions nationally (US Department of Education, 2003a). At the graduate level, women received 46% of the doctorates awarded nationally in those years (US Department of Education, 2003b). During this same time period, women comprised 39% of all faculty at 4-year degree-granting Title IV institutions. Among these female faculty, only 35% were tenured as compared with 52% of

men (US Department of Education, 2003c). The under-representation of women in tenured faculty positions has remained stable throughout the previous decade despite women's increasing participation at the undergraduate and graduate levels.

The trends at UW-Madison mirror those nationally. In the 2001–2002 academic year, 53% of the UW-Madison undergraduate population was female and 42% of all doctorate degrees granted by UW-Madison were earned by women (University of Wisconsin Madison, 2006). Among the full-time faculty, 28% of all positions were held by women in 2001–2002. Of these female faculty, only 38% were tenured as compared with the 57% of men who were tenured in these same years (University of Wisconsin System Administration, 2002). Taken together, these statistics suggest that women are under-represented among faculty, especially in tenured positions, both nationally and at UW-Madison.

To identify barriers at the faculty level, scholars have chosen to focus on female faculty in the sciences and engineering because it is within these fields that the greatest gender disparities are observed (Committee on Maximizing the Potential of Women in Academic Science and Engineering, 2006). A host of issues, including the lack of a critical mass of women in science, gender stereotypes and biases, workplace structures, differences in faculty workloads, lack of support for the tenure process, and family responsibilities have all been hypothesized to impede women's entrance, retention, and success in tenure-track faculty positions.

In the early 1990s, Etzkowitz *et al.* described the paradox of achieving a *critical mass* for women in science (Etzkowitz *et al.*, 1994). These researchers found that in any group, individuals tend to sub-divide into more specialized groups. In an academic department, this tendency often means that women faculty work within research groups where few, if any, other female faculty are present. This can create feelings of isolation that are often exacerbated by male-dominated assumptions and structures within academic departments, such as early morning or early evening meetings and the expectation of being in the lab for 70–80 hours a week. The authors note that,

> As long as the relatively few women in academic science were willing to accept the structures of a workplace organized on the assumption of a social and emotional support structure provided to the male scientist by an unpaid full-time housewife or done without, issues of women in science were not attended to. A modest increase in the numbers of women in science, without a change in the structure of the workplace, creates a paradox of critical mass. (51)

Thus, they conclude that the under-representation of female faculty in science, in and of itself, serves to hinder the participation and advancement of

women in science. Ultimately, changes in the structure of academe, especially within the tenure process, need to occur.

One pressing question researchers have sought to answer is why female faculty, as a group, tend to achieve tenure at lower rates than men. Gibbons (1992) identified many reasons, including gender-based standards of competence, lack of mentoring and access to resources, differences in productivity levels, and the effect of children and family responsibilities. Since Gibbons' opinion piece was published in the magazine *Science*, many studies have confirmed the hypotheses it set forth.

Biernat and Kobrynowicz (1997) confirmed that gender-based standards of competence may influence perceptions of women's abilities. Utilizing two experimental designs, they found that research participants judged male and female job applicants differently. They concluded that 'the ultimate outcome for a low-status [e.g., female] person is a longer, more difficult trek to document ability and evaluations that are objectively less positive than those awarded to similarly credentialed individuals from high-status [e.g., male] groups' (555). The inference we draw from this and related research is that female faculty are dually disadvantaged by the effects of gendered standards and stereotypes during the tenure process.

Other studies have suggested that the traditional ideal of a strong emphasis on research with fewer teaching and service duties does not match the reality of the way female faculty tend to perform and perceive their jobs (Johnsrud and Des Jarlais, 1994; Bronstein and Farnsworth, 1998). In particular, female faculty are often called upon to perform more service and advising duties than their male counterparts. They also tend to put more emphasis on their teaching duties overall. Unfortunately, these activities are often considered less valuable in a tenure evaluation, and many have argued that women are therefore disadvantaged in the process (Park, 1996). These results support what Menges and Exum (1983) described over 20 years ago; that is, women are disserviced in the tenure process by the differential value that their work is given and by the lack of mentoring and other resources needed to succeed. Current research that relies on campus-wide surveys and interviews validates these studies by supporting the idea that the academic environment is perceived differently by men and women (Bronstein and Farnsworth, 1998; Christman, 2003; Jackson, 2004).

Moreover, seminal research has clarified the relationship between family responsibilities and the tenure-track. Cole and Singer (1991) explained that contrary to commonly held stereotypes, female faculty with children can be as productive than those without. At the same time, others have argued that male-gendered policies and structures may persist in differentially impacting women's chances for tenure, especially when they are in the throes of raising a family (McElrath, 1992; Finkel and Olswang, 1996; Olson, 2002). Suitor *et al.*

suggest that female faculty on average devote more time to household and childcare duties than male faculty with families (2001). These additional responsibilities, in conjunction with the ideal of scholarly productivity, are thought to have negative consequences for female faculty on the tenure track. Perna (2001) has even suggested that this may explain the greater numbers of women in non-tenure track appointments, such as adjunct faculty and instructor positions.

More recently, much has been written about the correlations between faculty member's personal decisions about *when, if,* and *how big* of a family to have and their career trajectories (Mason and Goulden, 2002; Wilson, 2003; Armenti, 2004; National Science Foundation, 2004; Ward and Wolf-Wendel, 2004). These reports identified the disparate effects that a family, or lack thereof, can have on men and women in their achievement of tenure. To mitigate the disadvantages inherent in having a family, some have suggested tenure clock extension policies as the most common and beneficial means to support faculty as they strive to achieve tenure (Quinn *et al.*, 2004; Sullivan *et al.*, 2004; Ward and Wolf-Wendel, 2004).

Is the tenure clock extension policy as important as these scholars have suggested? What problems during the tenure process does the policy help alleviate, and how might the policy be improved? In the following article, we describe the research methods used to study the tenure process and the tenure clock extension policy at UW-Madison, the corresponding results from two data collection activities, and policy implications that stem from our findings.

Research Methods

UW-Madison first enacted its formal tenure clock extension policy in 1994. The policy, which is governed under the administrative code of the University of Wisconsin System Board of Regents, states that the 7-year maximum tenure clock may be extended when faculty face

> responsibilities with respect to childbirth or adoption, significant responsibilities with respect to elder or dependent care obligations, disability or chronic illness, or circumstances beyond the control of the faculty member, when those circumstances significantly impede the faculty member's progress toward achieving tenure.[3]

Although tenure clock extension policies are often developed to mitigate the negative effects that the responsibility for new family members may differentially have on women, the wording of the policy recognized the variety of situations that occur in the lives of both male and female faculty and ultimately was designed to be applied equally across genders.

In this study, we seek to answer a number of questions about the tenure process and the tenure clock extension policy at UW-Madison, in particular:

- *The Tenure Process Overall*. Which faculty members attempt the tenure process at UW-Madison? Do members of the faculty have the resources they need in order to achieve tenure? Are faculty members satisfied with their experience of the tenure process and do they feel that their job duties are consistent with the criteria upon which they are evaluated for tenure?
- *The Tenure Clock Extension Policy*. Why do faculty members use the tenure clock extension policy? How is the extension perceived?

A mixed-methodology research design that incorporated both quantitative and qualitative methods was used to answer these questions (Creswell and Clark, 2006). First, interviews were conducted with 26 female faculty in the biological and physical sciences in 2002–2003 (Pribbenow *et al.*, 2004). These interviews established a baseline of female faculty's experiences at UW-Madison and were used to inform the creation of a survey entitled, *Study of Faculty Worklife at the University of Wisconsin-Madison* (Sheridan *et al.*, 2003). This in-depth, detailed survey was administered to all tenure-track faculty in 2003.

Faculty worklife survey

WISELI's *Study of Faculty Worklife at the UW-Madison* survey was mailed to the homes of 2,254 faculty members in early 2003. The survey instrument, which spanned 11 pages, asked faculty to respond to questions about the hiring process, professional activities, the tenure and promotion process, overall satisfaction, use of campus and department programmes and resources, sexual harassment, balance of personal and professional life, diversity, and general demographic information (Sheridan *et al.*, 2003). Of the surveys distributed, a total of 1,338 were completed and returned for an overall response rate of 60.2%. Response rates however, varied across some faculty groups.

Assistant professors were slightly more likely to respond to the survey then associate and full professors. There was little difference in response rates of untenured (61%) and tenured (60%) faculty. Women were more likely to respond than men; approximately 66% of female faculty returned their surveys compared with 55% of men. This pattern was consistent across divisions, colleges, and schools within the University. Female assistant and associate professors were especially likely to return their surveys, and when broken down by gender, we find that tenured faculty had slightly higher rates of return for men; for women, tenure status made little difference in response rates (Table 1).

Table 1 Response rates of both women and men, and tenured and untenured faculty to the *Study of Faculty Worklife* survey

	Untenured		*Tenured*	
	n	*Response rate (%)*	*n*	*Response rate (%)*
Women	134	66.7	242	64.9
Men	160	52.8	718	56.2

Data from the survey show that a high percentage of female faculty at UW-Madison go through the tenure process here (as opposed to getting tenure elsewhere and then being hired here at UW-Madison with tenure), compared with men. Among all faculty respondents to the survey, 81% of the women were hired as assistant professors and went through the tenure process here, compared with 71% of men. Looking only at the participants with tenure, 75% of female tenured faculty went through their assistant professor years at UW-Madison, compared with 66% of male tenured faculty. Therefore, between 1994 and 2006 more women experienced the tenure process at UW-Madison as a result of the over-representation of male faculty hired at the associate and full professor ranks.[4] In comparison with male faculty, female faculty and faculty with children under the age of 6 tend to be over-represented in the untenured ranks (Table 2). Statistical comparisons were conducted using t-tests.

Interviews of female faculty

In 2002 and 2003, researchers conducted interviews with 26 female faculty members in the fields of sciences and engineering at UW-Madison. The purpose of these interviews was to:

(1) serve as a baseline from which to measure changes in women's experiences on campus following the completion of the grant that funded this study;
(2) contribute to the development of the *Faculty Worklife Survey*; and,
(3) inform the WISELI staff as they made decisions about areas of further study and development of WISELI-sponsored programmes on campus.

Through these interviews, we hoped to document the experiences of female faculty on campus and to use this information for further research and programming efforts.

The interviewee population was defined as those faculty members who were full-time faculty on the tenure-track, claimed one of the biological and physical sciences divisions as their disciplinary home, and were female. At that time,

Table 2 Proportion of faculty who attempt or will attempt to achieve tenure at UW-Madison

	All faculty		*Tenured faculty*	
	N	*Will/did attempt tenure at UW (%)*	*N*	*Will/did attempt tenure at UW (%)*
Women	394	89.1*	237	87.3*
Men	927	83.4	711	81.0
Children under age of 6	155	88.4	62	79.0
No children under age of 6	1044	85.3	848	83.1

*indicates gender difference significant at $p<0.05$.

Table 3 Female faculty sampled for interviews, by college or school

College or school	*N*	*Percentage sampled for interview*	*Sample*
Agricultural and Life Sciences	39	17.9	7
Engineering	13	15.4	2
Letters and Science	42	19.0	8
Medicine and Public Health	72	9.7	7
Pharmacy and Veterinary Medicine	13	15.4	2
TOTAL	179		26

there were 179 faculty who met these criteria. The sample was then chosen by selecting a random group of women, stratified across colleges/schools within the University. Ultimately, the sample was intended to be roughly proportional to the population of female faculty in each college and school (Table 3).

From the random sample of female faculty in each college/school, the interview pool was determined by selecting women from different departments and divisions within UW-Madison and at various stages in their careers. The final interview group included 10 assistant professors, four associate professors, and 12 full professors.

WISELI staff members conducted a single semi-structured, open-ended interview with each member of the interview pool. Interviewers used a standard protocol of open-ended questions, but also asked follow-up questions to clarify unclear points and guide the conversation towards the key areas of the interview protocol. When conducting the interviews, priority was given to following the train of thought of the interview participant rather than the order suggested in the protocol. Whenever possible, interviewers referred back to the protocol questions to ensure that all topics were covered. The interviewers reduced bias by minimizing the use of leading questions (i.e., questions that

encourage the participant to answer in ways that the interviewer is intending). Most interviews lasted approximately 1 hour; a few lasted 3 hours.

Following the interviews, the interviewers wrote summary notes about each and had the corresponding tapes transcribed. Electronic versions of the transcripts were inserted into ATLAS.ti©, a software program for qualitative data analysis, where sections of text were then coded into thematic categories. The process was iterative, in that the codes were expanded upon and modified until all 26 transcripts were analysed. In total, this resulted in 2,042 coded excerpts and more than 1,000 codes. Analysis continued by removing redundant codes, re-categorizing codes, and coding in more detail those codes that had a significant number of mentions (20 or more). This process resulted in a final codebook consisting of 367 codes that were sorted into 18 thematic areas. The resulting codes directly related to women's experiences with the tenure process, including the tenure clock extension policy, complement and expand upon the survey results.

Results

A portion of the *Faculty Worklife* survey requested information from faculty members about various aspects of tenure and their experiences while attempting to achieve it. The following results are from faculty respondents, both tenured and not, who were hired as assistant professors and experienced the traditional probationary period (normally 7 years), followed by a tenure review. While these results provide us with quantitative indicators of *who*, *when*, and *how much*, the interviews with the female faculty provide us with in-depth understanding and possible explanations for some of our findings. In the following, we describe pertinent data from the survey and use the interviewees' stories to deepen our understanding of how they and others have experienced the tenure process and have used the tenure extension policy at UW-Madison.

The tenure process overall

In general, most faculty (74%) were satisfied with the tenure process they experienced at UW-Madison. Female faculty were significantly less satisfied compared with men; approximately 66% of women reported that they agreed strongly or somewhat that they were satisfied overall with the tenure process, whereas 82% of men were satisfied. Those faculty who experienced the tenure process at UW-Madison prior to 1994 were significantly more satisfied with the process than those who went through after (Table 4).

Untenured faculty who are currently going through the tenure process reported being similarly informed about tenure criteria as compared to their

Table 4 Women's and men's overall satisfaction with the tenure process, before and after the tenure clock extension policy was adopted (1994)

	Tenure review before 1994		*Tenure review in or after 1994*	
	N	*Satisfied with process overall (%)*	*N*	*Satisfied with process overall (%)*
Women	104	61.5*	208	69.7*
Men	406	85.5	286	78.7

*indicates gender difference significant at $p<0.05$.

Table 5 Faculty's perceptions of the tenure process, by rank

	N	*Understood tenure criteria (%)*	*Received feedback on progress (%)*	*Felt supported in process (%)*	*Mentoring committee very helpful (%)*
			Untenured faculty		
Women	118	81.4	86.5	86.8	75.0
Men	137	86.1	91.1	88.8	81.5
			Tenured faculty		
Women	204	78.4*	68.7	64.6*	48.9*
Men	560	87.5	75.5	83.7	60.9

*indicates gender difference significant at $p<0.05$.

more senior colleagues. Junior faculty were also more likely than their tenured colleagues to report receiving feedback, feeling supported, and having a helpful mentoring committee. Gender differences were seen in the tenured faculty group, as these women were significantly less likely to say that they understood the tenure criteria, felt supported in the process, and found their mentoring committee to be helpful (Table 5).

Faculty members with young children — under the age of 6 — were slightly better informed about the tenure process than those without young children, and no significant gender differences appeared for the faculty with young children. Interestingly, gender differences did emerge among faculty without young children; men were significantly more likely to say that they understood the criteria to achieve tenure and that they felt supported in the process as compared to their female peers (Table 6).

The female interviewees illuminate some of these findings by describing how family responsibilities, the stress of the process, and lack of support, both tangible and intangible, are barriers to achieving tenure. Often, these factors became so intertwined that it was impossible to identify which one was the

Table 6 Faculty's perceptions of the tenure process, by having children under 6 years

	N	*Understood tenure criteria (%)*	*Received feedback on progress (%)*	*Felt supported in process (%)*	*Mentoring committee very helpful (%)*
	Children under 6 years				
Women	35	82.9	80.0	77.1	71.4
Men	95	86.3	91.0	89.2	80.9
	No children under 6 years				
Women	282	79.4*	74.3	72.4*	56.9
Men	577	87.7	77.3	84.7	64.0

*indicates gender difference significant at $p < 0.05$.

most compelling and was causing the greatest stress. Jaclyn hypothesized how different factors were inextricably linked in her experience:

> If you don't have tenure and you have a lot of people watching over your shoulder all the time, not used to having people do things differently, maybe not willing to consider that you're serious, and if you're not working full-time the whole time. … Also, if you know there's a fair number of faculty who don't have a life outside of their research and they may have chosen to not have children, then they're not terribly tolerant [of you].

Some of the interviewees described how this *tolerance* was reflected in the information provided to them by the department chair or other colleagues. For example, Ingrid was given the advice to limit her obligations:

> I was advised not to take on any major thing while I was getting tenure, which was good advice. We are very careful as a department to watch [assistant professors] … to make sure that we didn't overload them in the department. We also give them the advice that they shouldn't be accepting editorships and they shouldn't be accepting a lot of committee assignments while they are getting tenure. So we do watch over them here.

Leanne, who had been on campus for 2 years, also limited her obligations and focused solely on her research:

> Right now I'm basically almost 100 percent research. But that will change since I'm teaching one course next year, and then will probably start teaching one or two courses from then on. I think I've been fairly protected since I'm the newest assistant professor in the department, and in terms of departmental service, it's very low. I'm contributing to a committee for the

> first time starting this summer. I realize I'm very slow compared to other people on campus, but I've been able to focus on research.

Helping the women faculty to limit obligations was the most commonly cited support. Another piece of advice was to rely on the *mentoring committee*. Leanne mentioned her mentoring committee as one of the most valuable supports she felt:

> I've talked to other people at other universities and they don't have such a formal structure for mentoring new professors, so I can't say enough positive things about it. I thought it was a very positive experience in helping me to assess my priorities and helping me with my game plan in terms of teaching and research and so I feel very positive [about the process].

In general, the women recognized that their colleagues in the department served either in supportive or detrimental roles to their success. Brenda, who felt as if the department put up 'roadblocks' when she was enmeshed in the process, described her situation:

> One of the problems with junior women faculty in this environment is that your tenure and your prestige is based on your research. So, if that's the case, why not support the women faculty so that they can be successful in that? That comes down to space, equipment, and having time to do the research, and to not teach or run an undergraduate program [like I did]. They put up a huge roadblock for me to get tenure.

This faculty member did achieve tenure despite barriers at the University and department levels. It is only now, after being on campus for almost 20 years, that she is able to identify the challenges she faced, and as a department chair, can help new faculty be successful.

At the same time, others noted that their experiences were negative because they did not know how to achieve tenure and faced other unforeseen barriers. Consequently, they were unsure about the types of support they needed. The tenure process, according to Alison, was *amorphous* and at times, out of her (and her mentoring committee's) control:

> I know I have to get publications. Day to day, how do I get publications? How do you make students not leave? How do you? I lost three students last spring — graduate students who up and left. Money and time has been invested in these students. Projects were left open, unable to publish. I can't control this situation and neither can my tenure committee.

She, like others, continued to identify UW-Madison policies as a means to address issues during the tenure process that both men and women face. Yet, extending the tenure clock is not always an option known to junior

faculty. A few of the women noted that they had never heard of the policy or became aware of it only after they could have used it. Alison described her disappointment in not being aware of the tenure clock extension earlier:

> I had an eleven-month-old son when I started, and nobody took me aside and said, 'Get your year. You have to speak up now if you want to delay yourself a year. I don't care if you think you need it. Take it. The worst thing that can happen is that you'll go up a year early. But take the year.' And now it's too late.

Mara, who was 3 years into her contract, explained how she 'doesn't know the rules':

> I know that for issues of child bearing and small children there are ways to [extend the tenure clock], but I haven't explored it. I expect I will try to lengthen my tenure clock at some point and plead excessive [position-related] responsibilities to do so, but I don't know the rules. I do have two small children, as well.

Helen, another recent hire, described a similar situation:

> Sometimes I wonder about what the policy is … I sort of know that the tenure clock can stop if you give birth and then after that it is kind of a vague idea. I know I can do it. I just have to go and find out, but I really don't know how I should start.

In these instances, the women were lacking integral information about how to use the policy as a supportive mechanism in the tenure process.

The Tenure Clock Extension Policy

Among the 508 men and women who attempted to achieve tenure at UW-Madison in 1994 or later, 116 (23%) used the tenure clock extension policy. Of those, the majority (86%) felt their departments were supportive of this, and many (77%) also received reduced responsibilities in addition to the extension. Survey results showed that reasons for taking a tenure clock extension fell into four main categories: (1) family/personal issues, (2) university factors, (3) career factors, and (4) tenure policy issues. Of the faculty members who took a tenure clock extension and explained why in the survey, the most common reason they cited was that they were having or adopting a child and were taking parental leave (49%). Two other common reasons for taking a tenure clock extension included delays resulting from problems with labs (i.e., they took time to set up, they were being remodeled or renovated, the facilities were inadequate, or some simply had no lab space at all (11%)), and

delays resulting from a personal illness that interfered with work (8%). Other themes that were mentioned included:

- family/personal reasons (e.g., illness or death in the family, issues with immediate family members, elder care and/or death of a parent, marriage);
- university factors (e.g., change in department or job position, heavy workload or additional responsibilities);
- career factors (e.g., received a research fellowship, still pursuing a Ph.D. or other career goal, transferred from another institution, needed to increase publications); and
- tenure policy issues (e.g., procedures not followed fairly or accurately, change in policy).

As expected, female faculty were significantly more likely than men faculty to use the policy. They reported having supportive departments less often than men, but this difference was not statistically significant.

In general, the women we interviewed had a positive view of stopping their tenure clock, especially in cases where it proved to be valuable for them personally and professionally. Each of the examples below reflects some of the many reasons given by the faculty members who used this policy. Brenda,[5] who was chair of her department at the time, talked about how the policy was used to support another faculty member:

> R: I did that for an assistant professor. She had trouble with getting the research space she needed and had tremendous problems with her family.
> I: And you advocated on her behalf, she didn't do it on her own?
> R: Exactly. I advocated for her, and the faculty member who was the chair of her tenure committee, we talked it over and agreed … . The process was completely smooth. And that's very important for women, particularly if they have families.

Renee, who was close to achieving tenure, talked about her experience and decision to use the policy and stop her tenure clock for a year:

> I had a child while I was here, so I was very much encouraged to do it. No one said, 'Oh no, you shouldn't do that.' Everyone said, 'It's there, take it. You're foolish not to.' … . I am definitely going to need the extra year just to wrap it all up.

For other women, the choice to use the policy came at a time when their personal lives and professional lives were dealt devastating blows. The loss of a close family member affected Hannah's professional plans:

> And then when I got this job my [family member] died, so that was a big mess. And so I thought, 'Well, I'll just stay here for a while.' … . That's

Table 7 Reported use of and department support for tenure clock extensions

	N	*Department supportive of extension (%)*	*Received reduced responsibilities (%)*
		First extension	
Women	74	82.4	82.9
Men	42	90.5	71.4
		Second extension	
All	17	82.4	68.4

why I've actually been here eight years, because the first year was given to me, if you will, it was taken off of the tenure-track time.

When Barbara arrived, she realized that to be successful here, she needed to change her research focus. She adapted her tenure clock to this circumstance:

It was extended when I was hired because of the slight change in the research focus. All of my projects at my previous university were very regional projects and I had to drop them and start in a new area here.

At the outset, Barbara was aware of the policy and was able to negotiate for and include the extension in her initial employment contract.

Some faculty extended their tenure clock more than once. Of those who extended their tenure clock one time, 16% used the policy a second time. The 17 *Faculty Worklife* survey respondents who explained why they took a second tenure clock extension did so most often because of childbirth or adoption of a child (52%). The second most common reason was an illness or death in the family (19%).

Overall, faculty who used the policy more than once reported that their departments were supportive of this. This group, however, also reported receiving fewer reductions in responsibilities during the extension second period. Whereas 77% of faculty reported receiving reduced responsibilities the first or only time they ask for an extension, only 68% of those with a second extension reported reduced duties (Table 7).

Finally, the survey asked faculty who were eligible for a tenure clock extension but did not take one, whether they had wanted to take an extension and why they chose not to. Nineteen percent of female faculty and approximately 8% of male faculty reported that they had wanted to take an extension but did not. Although the percentage of women who wanted to take an extension is larger than the percentage of men, the difference is not significant due to small numbers. Larger, significant discrepancies appeared between faculty with children as compared to those without (Table 8).

Table 8 Reported desire to use tenure clock extension policy but did not take an extension

	Children under 18		*No children under 18*	
	N	*Desired to, but did not take extension (%)*	*N*	*Desired to, but did not take extension (%)*
Women	73	19.2*	98	3.1
Men	166	7.8	73	4.1

*indicates gender difference significant at $p<0.05$.

Of the 43 people who explained why they did not extend their tenure clock, many reported they were *overconfident* or did not feel an overwhelming need to at the time, but in hindsight realized they should have taken the extension (37%). Over 20% said they thought it would be viewed negatively in the department or would impact their career negatively. Jaclyn, for example, described how other women on campus had used the policy, and their perceptions of the policy:

> Some of [my female colleagues] did and some of them didn't. Some of them felt that that was going to be viewed negatively … . I think there's still a lot of question marks and uncertainty and just psychological pressure that goes along with that process … . I would not want to say get rid of [the policy]. I think in some cases, it's necessary, but it's not viewed as a completely positive thing.

A few respondents mentioned the following reasons for not extending their tenure clock, although they wanted to.

- The policy was not an option available to them at the time they were hired (12%).
- They did not want to prolong the tenure process (7%).
- They were not aware of the policy or did not understand how to go about receiving an extension (7%).

Some respondents (7%) applied for and received permission to extend their tenure clock, but then decided not to use it mainly because they eventually felt that they were progressing satisfactorily.

Looking only at those faculty who achieved tenure after 1994, or who have not yet achieved tenure, we found that those who used the tenure clock extension policy were significantly less satisfied with the tenure process, compared to those who did not take the extension. We also found that faculty who took a tenure clock extension reported feeling significantly less supported,

Table 9 Faculty's perceptions of the tenure process, by use of the tenure clock extension policy (TCE)

	N	*Satisfied with tenure process overall (%)*	*Felt supported in process (%)*	*Mentoring committee very helpful (%)*
Took TCE	108	55.6*	70.4*	57.8*
Did not take TCE	388	80.4	86.0	73.8

*indicates difference significant between TCE groups at $p < 0.05$.

and thought that their mentoring committees were less helpful, compared to those who did not take the extension. These results were significant and were true for both men and women who took tenure clock extensions (Table 9).

Discussion

The *Faculty Worklife Survey* conducted in 2003 provided us with a unique opportunity to delve into the tenure process at UW-Madison, and the tenure clock extension policy specifically. The results from this survey are complemented by the insights expressed by the female faculty originally interviewed to create the survey. From these sources, we discover that universities do indeed need family-friendly policies like tenure clock extensions on campus, yet a careful review of this policy is needed.

Our results suggest that majority of the faculty surveyed were satisfied with their experiences during the tenure process at UW-Madison. Moreover, the University appears to be doing an ample job in educating most untenured faculty about the tenure criteria, giving them feedback, and providing support. At the same time, female faculty and faculty with children under the age of 6 are over-represented in the untenured ranks. This finding alone could be the basis for changing institutional structures and developing family-friendly polices related to tenure.

When studying the implementation of the tenure extension policy at UW-Madison, we discovered that women who were tenured prior to 1994 (the year the tenure clock extension policy was implemented) are less satisfied with the tenure process based on gender alone. There is, however, no gender difference in satisfaction among faculty tenured in 1994 or later. Instead, dissatisfaction with the tenure process is confined to those women who used tenure clock extensions — not all female faculty. In other words, the tenure clock extension policy, which was designed to mitigate some of the disadvantages based on gender, does not necessarily increase satisfaction with the tenure process for those who use it.

Thus, our results also show that implementing one policy does not solve all of the problems with the tenure process. For example, those who used the tenure clock extension policy were significantly less likely to feel supported, to feel as if their job fit with tenure criteria, and to receive feedback on their progress towards tenure, compared to those who did not take an extension. Furthermore, they said they were less satisfied with the tenure process overall. This finding could be explained by variables that were not studied. For example, the stress of the tenure process might be exacerbated by the life event that caused the faculty member to take the extension. Because this was not our focus, we cannot draw conclusions from this finding. We can suggest however, that tenure clock extensions, which are designed to alleviate the stress of the tenure process, need to be complemented by other strategies.

Our data also suggest that although many have taken advantage of the policy, there still appears to be widespread about ignorance how to request an extension, and for a small minority of cases, some stigma and fear about using it. Furthermore, faculty are not necessarily more satisfied with the process after having taken an extension. Our recommendations to make tenure clock extension policies more effective include:

- communicating the policy to all new faculty, both tenured and not, as part of their orientation to the University;
- ensuring that department chairs are implementing the policy similarly and are providing both men and women with the information needed to apply for an extension;
- training departmental executive committees and divisional committees about the tenure clock extension policy and provide oversight to these groups so that the extension is not discussed while evaluating a tenure candidate;
- providing specific support and resources to faculty who request extensions, based on the reason(s) for their request and their needs.

Recent publications, such as The National Academies' *Beyond Bias and Barriers: Fulfilling the Potential of Women in Academic Science and Engineering* (2006) and the National Science Foundation's *Gender Differences in the Careers of Academic Scientists and Engineers* (2004) provide a national perspective to the debate and identify many of these same recommendations for increasing the overall satisfaction and retention of faculty in academe. Many universities have implemented these recommendations. For example, the University of California system created the *Faculty Family Friendly Edge* — 'a series of policies and programs designed to assist tenure-track faculty, pre- and post-tenure, in achieving a satisfying and productive family life' (Mason *et al.*, 2005, 2). Others address issues by making policies mandatory. For example, at Princeton University, extensions are immediately granted when either a male or female faculty member adds to their family through birth or adoption

(Valdata, 2005). Current practice, such as that found at UW-Madison, is to have the faculty member apply for the extension and then it is automatically granted. With mandatory extensions, all faculty receive it without an official request. In this way, the stigma is removed and the policy is seen as an automatic benefit to support faculty members and their personal lives.

Another modification to the tenure process is the idea of lengthening the tenure clock and then allowing a faculty member to choose the 5 best years within that time frame upon which to be evaluated. Through the in-depth interviews, we gleaned some interesting ideas about changing the tenure process at UW-Madison. Nicole, for example, felt that tenure should be extended to a *reasonable* time for everybody:

> I'm not sure it's reasonable to expect everyone who becomes an academic to work that hard. I think doing something with tenure, maybe extending it to ten years and allowing more flexibility would be better.

A few women noted that the tenure process, itself, is the problem. Pamela, who pondered leaving the tenure track, explained:

> Well, extend[ing] my tenure time by a year … is one option I've considered. But that doesn't address the funding issue. When you're hired in a research position, particularly if you're spending 75% of your time doing research within your division, then you're expected to be funded. And those funds come with stipulations, you must put in a certain percentage of your time into working on this grant … . But to get tenure you have to have funding, and if you have to be full-time to keep your funding, then you're in a circle of not being able to get out of that unless you completely get out of the tenure track. You know, completely get out of the tenure system altogether, which is what I think some people do. So, that's my current issue, having funding, that's determining whether my time could be extended and stretched out. You know maybe a four-year grant could be turned into a five-year grant, but some of that would be part-time, and make your salary less, and your funding less. But as far as I know, that's not an option with funding agencies.

To address funding issues, such as those identified above, the University of Washington offers two policy options for faculty who want to work part-time — a permanent part-time tenure track option and a temporary part-time option that combines partial leave with a tenure clock extension (Quinn *et al.*, 2004). This policy provides assistance to faculty in balancing their professional and personal lives by providing many options for effective and productive schedules.

Conclusion

Our results provide us with a number of research questions that still need to be answered. Specifically, where does the dissatisfaction with the tenure process come from, especially when using the tenure extension policy? Why are some people aware of the policy and others are not? Why are some faculty members afraid to use the policy and where does this perception come from? All of these questions require further study of the lives of faculty members at UW-Madison, both men and women, to uncover the issues that are leading to their dissatisfaction. Our hope is that others might find what we did uncover about the tenure process and tenure clock extensions at UW-Madison useful as they strive to implement the best policies in their own institutions.

Notes

1 Correspondence should be sent to primary author.
2 This material is based on work supported by the National Science Foundation under Grant No. 0123666. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the National Science Foundation. NSF SBE – 0123666, $4.75 million provided from 1 January 2002 to 31 December 2006; the ADVANCE Program is subtitled 'Increasing the Participation and Advancement of Women in Academic Science and Engineering Careers'.
3 Faculty Appointments, *Wisconsin Administrative Register*, sec. UWS 3.04(3) (June 1995).
4 Some faculty hired as associate or full professors attempted the tenure process shortly after arriving on campus (that is, they were hired at a higher rank with the agreement that they would be reviewed for tenure as soon as they arrived). These cases have been removed from the analysis because various policies or programmes that were implemented, such as tenure clock extensions and departmental mentoring committees, would not be experienced by these particular faculty.
5 Pseudonyms are used to maintain the anonymity of the interviewees.

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WISELI Publications 2010:

Carnes, Molly. 2010. "Commentary: Deconstructing Gender Difference." *Academic Medicine*. 85(4):575-577. **PMID: 20354367.**

Commentary: **Deconstructing Gender Difference**

Molly Carnes, MD, MS

Abstract

In Japan, as in the United States, a growing proportion of physicians are women. Hence, the different social roles that men and women occupy and the gendered norms for behavior are increasingly relevant in ensuring that male and female physicians have equal opportunity to participate and advance in all aspects of medicine. Elsewhere in this issue, Nomura and colleagues report on a large survey of primary care residents in Japan. They found that on average women's self-rated confidence on many clinical tasks was lower than men's. This is not surprising given similar gender differences in self-assessed competence in other research and the socialization of women in virtually all cultures to be modest. The actual differences in average scores were small suggesting considerable overlap in the distributions of responses from male and female residents. In addition, research from other countries finds no association between physicians' self-reported confidence in clinical tasks and objective measures of competence on which female physicians rate at or above the level of their male counterparts. Congruent with different social roles for men and women, Nomura and colleagues also found gender differences in the average responses about work-family priorities and aspirations toward leadership, but some women indicated a desire for research careers and some men were "life-oriented." The author of this commentary argues that to draw conclusions about *all* male or *all* female physicians from average differences of a large group of residents may reinforce gender stereotypes that continue to impede each individual female physician's career advancement and each individual male physician's struggle for work-life balance.

Acad Med. 2010; 85:575–577.

Editor's Note: This is a commentary on Nomura K, Yano E, Fukui T. Gender differences in clinical confidence: A nationwide survey of resident physicians in Japan. Acad Med. 2010; 85:647–653.

In this issue, Nomura and colleagues[1] report that in a large study of primary care resident physicians in Japan, women on average rated themselves less confident than their male counterparts in most but not all of their clinical skills. Male physicians on average expressed greater interest in leadership pathways, and female physicians on average expressed greater family orientation—both of which are congruent with socialized gender norms. Perspectives on work and life, while different on average for men and women, were not significantly related to confidence levels. The authors fit their findings into some of the research on gender differences in physicians from the United States and Europe.

Additional insights into the complex ways gender may be influencing Nomura and colleagues' findings come from social psychology. Research in this field suggests that the social expectation of women to be modest, the phenomenon of stereotype threat, and the influence of gender stereotype priming may significantly influence women's assessments of their own competence. Given the differences in social roles for men and women and the prescriptive behavior-related gender norms, more noteworthy than the observed differences in this large sample may be how small these differences are for most items and the degree of similarity between male and female physicians' responses. The following discussion focuses on relevant research on gender issues and cautions against relying on mean differences between groups of people to form conclusions about individual members of those groups.

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Prescriptive Gender Norms for Women: "Don't Brag"

In all societies, gender is a powerful social category that carries with it lifelong socially constructed messages about how males and females should (and should not) behave. Across all societies, the prescriptive gender norms for females involve communal behaviors, such as being nurturing and supportive, while those for males are generally more agentic, such as being assertive and independent.[2] Both males and females suffer social penalties if they exhibit behaviors outside these gender norms. The fact that our language contains many pejorative terms for men (e.g., "wimpy") and women (e.g., "bossy") whose behavior is perceived to violate gender norms is an indication of the social costs of doing so. Congruent with gendered behavioral norms, girls early in life generally receive negative messages from parents and others if they boast about their skills or accomplishments—rather, they are imbued with messages that reinforce modesty as the socially desirable behavior for girls. Such messages are less likely to be part of the behavioral script for boys for whom boldness may be encouraged. Indeed, studies document the tendency for men, including male physicians,[3] to overestimate their actual task competence. To succeed professionally, women must learn the negative consequences of violating the prescriptive norms for female modesty in employment settings. In carefully designed, controlled experiments,

Rudman has repeatedly demonstrated that women—but not equivalently qualified men—who self-promote (i.e., brag about their expertise) have less favorable employment and economic outcomes than nonbraggers and that the presence or absence of such behavior is given more weight than competence in hiring decisions for women but not men.[4]

More salient than physician gender differences in self-expressed confidence are measures of actual clinical competence. On this matter, several studies (e.g., Lind and colleagues) indicate that female physicians are rated as equivalently or more competent than their male counterparts.[3] Whether female physicians' lower self-assessment of their skill contributes to their lower likelihood of career advancement relative to men or whether this modesty favorably facilitates their career advancement remains unknown. In support of the latter is the finding of Bartels and colleagues[5] that residents of both genders described the need for female residents to adopt more stereotypically female behaviors, including speaking with a nicer "tone," to enhance their effectiveness. Modesty may be another learned behavior that promotes rather than hinders women's success in traditionally male fields by providing explicit evidence of communality.[6] The inability to predict the impact of such behavior on either actual competence or career outcomes of female physicians underscores the multifaceted and complex effects of gender at the individual and organizational level. As indicated by Nomura and colleagues, the correlation between the results of these questionnaires and the career outcomes of the respondents will require longitudinal follow-up.

Because of the socialized differences in role expectations, it is not surprising that Nomura and colleagues found that more women than men surveyed indicated family as the most important thing in life or that more men than women expressed an interest in activities that lead to leadership (e.g., research, administration, and an advanced degree). The penalties for gender role violation would predict that even if an individual woman did not endorse the female stereotype of prioritizing family or did endorse the male stereotype of aspiring to leadership, she would be less likely than a man to acknowledge this. Against this backdrop of prescriptive gender norms, it is perhaps more remarkable that many female residents surveyed did admit to prioritizing professional commitment (18%) and to having leadership aspirations (13–28%) and that many men did express an orientation toward family (54%) and work-life balance (54%).

Gender Stereotype Priming and the Threat of Incompetence

Exposure to information that reinforces gender stereotypes reliably promotes gender bias in subsequent decision making. Physicians are bombarded with such gender stereotype priming in their environment: women are predominant in subordinate caregiving roles as nurses and support staff, men are heavily overrepresented in high-status fields (e.g., surgery) and in hospital and department leadership roles, and portraits of male physicians and scientists frequently line the walls of hallways and conference rooms in hospitals and medical schools. Steele's group first described and has conducted extensive research on the phenomenon of stereotype threat.[7] This construct holds that if a negative stereotype about the competence of a group exists, members of that group, fearing that they will be judged in accordance with the stereotype, may perform at a level below their actual ability. In a U.S. study, Davies et al.[8] examined stereotype threat for women and leadership and found that female gender stereotype priming with media images made women (but not men) less likely to select a leadership role in a subsequent group task. In Nomura and colleagues' study, stereotype threat could have been triggered for female residents taking the questionnaire if they were asked to identify their gender at the beginning rather than the end of the survey or simply by the stereotype priming ever-present in their environment. Self-perceived competence (self-efficacy) has been closely linked to successful task performance and career persistence. However, the possible influence of stereotype threat activation, in conjunction with the lack of association between female physicians' self-rated competence and actual performance in other research, cautions against relying on Nomura and colleagues' study to draw conclusions about comparisons between female and male residents' actual competence. As more women enter medicine, a useful intervention to mitigate the effect of stereotype threat and promote women's self-efficacy would be to permeate the training and practice environment with clear messages that "research indicates no gender differences in the ability to perform any of the clinical tasks required of physicians." Davies et al. found that such statements of affirmation eliminated the negative impact of stereotype threat on women's self-selection of a leadership role (and had no impact on men).

It is interesting that Nomura and colleagues found that female residents rated themselves the same or slightly better than male residents on perceived competence in blood drawing and insertion of urinary catheters. It is possible that of all the clinical tasks assessed, female residents on average actually have selectively greater competence in these tasks than male residents with the same amount of experience. More compelling, however, is to consider whether the discrepancy between gender differences for these tasks and that for other clinical tasks assessed (e.g., lumbar puncture or chest compression) is conflated with gender differences in who typically performs these tasks and the resultant assumption of technical difficulty and status associated with them. Tasks usually performed by men are often implicitly assumed to be technically more difficult and have higher status whether this is true or not. In the United States, blood drawing and urinary catheter insertion are most often performed by nurses or nonphysician clinical staff, most of whom are women. If this is also the case in Japan, residents may not perceive these tasks to belong as definitively in the "masculine-task" domain as the other clinical tasks. Therefore, questions about competence on these tasks may be less likely to trigger stereotype threat for female residents and also less likely to invoke the need for modesty in self-reported confidence in performing these lower status tasks.

Promoting Development of All Talent

Because biological differences do not constrain men's or women's performance as physicians, the challenge is to prevent

socially constructed gender-based assumptions from inhibiting the full participation of men and women in all the complex aspects of improving the health of patients and populations. An important first step is to acknowledge that gender norms for behavior exist, are powerful, and may differentially influence female physicians' early self-assessed confidence in some stereotypically male agentic clinical tasks, and perhaps may affect male physicians' self-assessed confidence in some stereotypically female communal clinical competencies, such as empathy.[9] As suggested by Nomura and colleagues, this information could be incorporated into the medical curriculum at multiple levels. Studies on mitigating gender bias also support including and often repeating in the curriculum the explicit message that research has found no gender difference in the ability to function as physicians, leaders, or scientists. With all due respect to the past patriarchs of medicine, the visual display of their portraits in modern academic medical centers may trigger stereotype threat for women. Such male-stereotype gender priming may also lead to more positive evaluations of male than female physicians or scientists with comparable expertise working in this environment. Removing these portraits can send an important message to all stakeholders about the value of inclusiveness in academic medicine. Alternatively, given the evidence that counterstereotype imaging (i.e., intentionally imagining a "strong" woman) can reduce unconscious gender bias,[10] interspersing portraits of women who are successful physicians and scientists with those of men may send an equally effective message.

Male and Female Physicians: More Alike Than Different

The title of Nomura and colleagues' article emphasizes the gender difference in self-rated clinical confidence. Such an emphasis may be misleading and a disservice to both male and female physicians. More noteworthy is that in spite of the powerful prescriptions of gender and the male-dominated workplace of Japanese medicine noted by the authors, these differences were very small. Most female and male residents scored themselves in the "feel somewhat confident" range. While the differences between male and female residents' levels of confidence were smaller in the relational aspects of patient care, their responses, falling closer to the "not very confident" range, suggest the need for improvement for both genders. The authors provide the confidence intervals around the mean difference for male and female residents, but they provide no data on the dispersion of the actual responses. The small difference in average responses for male and female residents suggests that there was considerable overlap in the distribution of responses—that there were many women who expressed greater confidence than men and many men who expressed less confidence than women. Similarly, it would be statistical discrimination to assume that all female residents favor family over professional commitment when 18% indicated that professional commitment was more important. More men than women aspired toward leadership, but many women also expressed these career goals. Both men and women expressed an equivalent desire for work-life balance. Because Nomura and colleagues conducted a large study with a high response rate, the gender differences they report allow for considerable reflection regarding gender and medicine, and correlations with future career outcomes will be interesting. One must exercise caution, however, in relying on the average differences between a large group of residents to draw conclusions about *all* male or *all* female physicians. Using the findings of Nomura and colleagues to reinforce gender stereotypes will continue to impede each individual female physician's career advancement and each individual male physician's struggle for work-life balance.

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A Qualitative Study of Faculty Members' Views of Women Chairs

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Abstract

Background: Concurrent with the evolving role of the department chair in academic medicine is the entry of women physicians into chair positions. Because implicit biases that stereotypically masculine behaviors are required for effective leadership remain strong, examining faculty members' perceptions of their chair's leadership in medical school departments with women chairs can provide insight into the views of women leaders in academic medicine and the complex ways in which gender may impact these chairs' leadership style and actions.
Methods: We conducted semistructured interviews with 13 male and 15 female faculty members representing all faculty tracks in three clinical departments chaired by women. Inductive, qualitative analysis of the subsequent text allowed themes to emerge across interviews.
Results: Four themes emerged regarding departmental leadership. One dealt with the leadership of the previous chair. The other three described the current chair's characteristics (tough, direct, and transparent), her use of communal actions to help support and mentor her faculty, and her ability to build power through consensus. Because all three chairs were early in their tenure, a wait and see attitude was frequently expressed. Faculty generally viewed having a woman chair as an indication of positive change, with potential individual and institutional advantages.
Conclusions: This exploratory study suggests that the culture of academic medicine has moved beyond questioning women physicians' competence to lead once they are in top organizational leadership positions. The findings are also consonant with experimental research indicating that women leaders are most successful when they pair stereotypic male (agentic) behaviors with stereotypic female (communal) behaviors. All three chairs exhibited features of a transformational leadership style and characteristics deemed essential for effective leadership in academic medicine.

Introduction

The skills required of department chairs in academic medicine have evolved tremendously.[1–5] In the past, the chair was an honorary position given to a talented, revered physician who was strong in the three missions of clinical practice, education, and research. Today, the chair must be a department head with complex leadership skills, including protean communication abilities, an understanding of funds flow from various sources, the ability to inspire multiple stakeholders toward a collective vision, and the flexibility to adapt to the changing and frequently unpredictable environment of academic medicine.[1–5] Concurrent with the evolving role of the department chair is the entry for the first time of women physicians in substantial numbers into chair positions.[6,7] According to the Association of American Medical Colleges (AAMC), in 2007–2008, women accounted for 34% of all medical faculty and 17% of full professors. Although women have comprised >30% of medical students for nearly three decades[8] and much has been written on the disproportionate lack of advancement of women physicians into senior and leadership positions,[9–12] the AAMC data indicate that women are achieving leadership positions in the top echelons of academic medicine in unprecedented numbers. Of all departments in academic medical centers (AMCs) 12% are now led by women (vs. 6% in 1998) and only 6 of 126 AMCs remain with no women chairs.[8]

Implicit biases that stereotypically masculine behaviors are required for effective leadership remain strong.[13–15] Examining faculty members' perceptions of their chair's leadership in

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medical school departments chaired by women can provide insight into the evolving views of women leaders in academic medicine and the complex ways in which gender may impact these chairs' leadership style and actions. Qualitative methods are ideally suited to probe this issue because they allow exploration of real life behavior.[16] These methods enable research participants to speak for themselves, with the underlying belief that perceived reality is constructed by the social, historical, and individual contexts in which it is lived.[17] This stands in contrast to quantitative research, which generally works from the assumption that there is an absolute true reality that can be discovered. We chose to use the qualitative method of grounded theory, which is widely used in the study of social phenomena to explain processes or generate theories that are derived from (i.e., grounded in) systematic analysis of the rich data collected by interviewing participants.[18–20] Unlike quantitative research where the goal is to select participants randomly, participants in a study using grounded theory methods are chosen because the investigators believe they will represent the range of beliefs and experiences relevant to the issue being studied. This is referred to as "theoretical" or "purposive" sampling.[21,22] The unit of analysis in grounded theory is the incident or condition and not the person or patient as in quantitative research. In this study, we interviewed faculty members in three clinical departments with women chairs. We explored issues of leadership and interpreted the findings in the context of socialized gender roles, research on leadership, and the prevailing views of requisite skills for chairs in the current academic medicine environment.

Materials and Methods

Participants

Participants were faculty members who had served under at least one previous chair at the University of Wisconsin School of Medicine and Public Health and who were currently in one of the three clinical departments (out of 16) with a woman chair. The study was approved by the Institutional Review Board, and all participants gave written informed consent. Using a theoretical sampling strategy, the senior author (M.C.) identified cases expected to have the desired range of experiences from lists of all faculty members in targeted departments. She sent email invitations for an interview to those selected, including physicians at all ranks (assistant, associate, and full professor) and in three faculty tracks: tenure (clinician-researcher), clinical health sciences (clinician-educator), and clinical (clinician-practitioner). Invitations stated that the study was investigating leadership in clinical departments, without mention of gender or which departments were being studied. Of the 65 faculty members contacted, 30 did not respond after two follow-up email invitations. Of the 35 who responded, 1 declined, 1 was ineligible (service under only current chair), 33 were scheduled for interview, 29 were interviewed, and 1 withdrew after interview. Three departments were represented in the sample with the following responses: department A, 11 (5 male, 6 female); department B, 10 (5 male, 5 female); and department C, 7 (3 male, 4 female) faculty participants. Table 1 lists the interview questions. The first author (L.G.) performed all interviews at sites convenient to participants during the summer of 2008; the interview lengths ranged from 15 to 35 minutes. L.G. digitally audiorecorded, transcribed verbatim, and removed all identifying information from the interviews. Pseudonyms were assigned to the interviews for tracking. Participants reviewed and verified transcripts (sometimes referred to as "member checking").[23]

Table 1. Questions Posed to Faculty Members from Three Clinical Departments in Semistructured Interviews

Tell me a little about your background and role in the department.
How does your department develop its goals?
What are your perceptions of the leadership style and decision making in your department? Can you talk about a specific instance?
What do you think are your co-workers' views of the leadership style and decision making in your department?
How did the new chair establish her role as leader of the department? Can you give a specific example?
You have served under more than one chair. If there are any differences in their leadership styles, can you describe them?
Do you have anything to add?

Inductive data analysis

We followed Strauss and Corbin's steps[20] for sequentially coding data and grouping subsequent codes. First, each interview transcript was examined line by line or sentence identifying initial concepts (codes) in what is referred to as "open coding." Next, codes that were viewed as conceptually linked were grouped together (axial coding). Finally, these concepts were integrated and synthesized into categories (selective or theoretical coding) to identify the core categories to which other categories relate.[20] We adhered to the central principle of data analysis in grounded theory research, which is an iterative cycle of data collection, analysis, and comparison with previously collected data looking for coherence until unifying and recurrent themes emerge from the data itself and no new codes occur.[19,20]

NVivo, a computer software program for managing qualitative analysis, facilitated data organization, coding, and retrieval.[24] L.G. defined the set of initial codes in the open coding process (Fig. 1). The second author (C.I.) reviewed and verified these initial codes in the first five transcripts. Examples from this open coding were "action," "being decisive," "change," "closed door," and "difference." Axial codes were developed from the initial open codes in weekly meetings of the research team, linking like concepts around the axis of a category. Examples of the axial codes were "damage," "direct," "support through recognition of value," 'actions for faculty," and "power in consensus." From selective coding of the axial codes, core categories were identified and synthesized into final themes and a theoretical model grounded in the data (i.e., a grounded theory) (Fig. 2). C.I. verified the final selective coding by independently categorizing the data derived from L.G.'s initial codes. The intercoder agreement ranged between 82% and 100%, with an average of 89%. As commonly occurs in qualitative analysis of text, double coding could occur (e.g., a statement could contribute conceptually to two categories of codes).

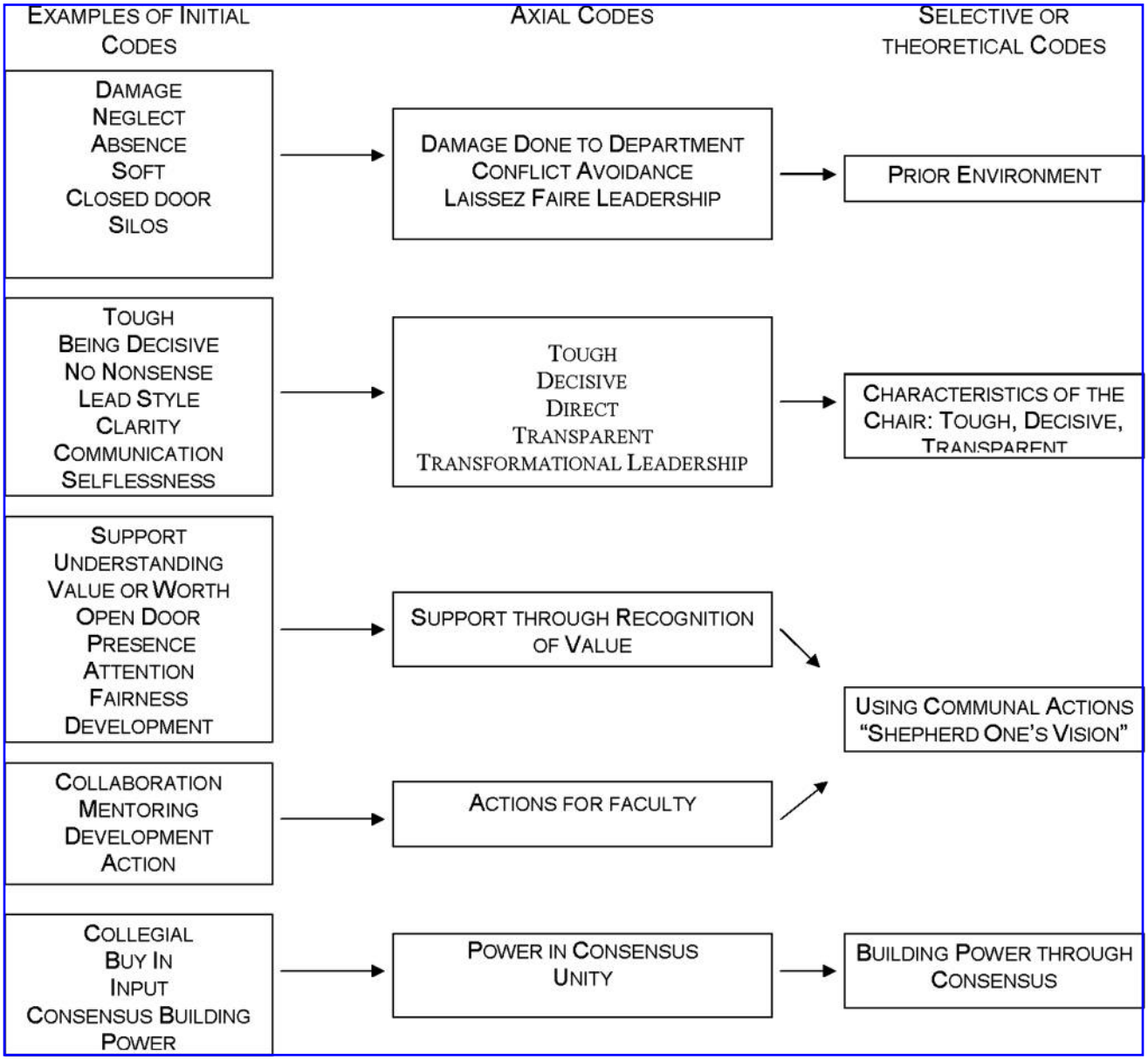

FIG. 1. Coding progression from development of initial coding to emergence of four themes illustrating theoretical coding reached after 29 interviews through researcher consensus and data saturation.

All codes were continually compared within their conceptual categories as new data were collected. Discrepancies in coding or categorization were resolved by discussion until consensus was reached. Data saturation[25] in which no new data codes, categories, or themes emerged occurred after 19 interviews. Validity of the results in grounded theory is judged by the degree to which they present a consistent and coherent story line.[19] In discussing qualitative research data, Koro-Ljungberg[26] prefers the term "validation" to "validity." In this study, validation of the emerging themes was enhanced by the presence on the research team of an experienced qualitative researcher with a background in educational leadership (C.I.) and an investigator (M.C.) with extensive knowledge of the extant research on implicit gender stereotypes. Because coding is not preliminary to analysis but an integral part of the interpretation of the social condition under investigation, the requisite assumptions for the application of statistical tests (confirmatory analyses) in grounded theory (exploratory analyses) are not met.

Results

Open coding identified 34 initial codes, which were integrated into 8 axial codes, each containing 2–5 codes. These were ultimately synthesized into four major themes that comprehensively defined all codes regarding departmental leadership (Tables 2A, 2B, 2C, and 2D). One dealt with the leadership of the previous chair. The other three described the current chair's characteristics (tough, direct, and transparent), her use of communal actions to help support and mentor her faculty, and her ability to build power through consensus.

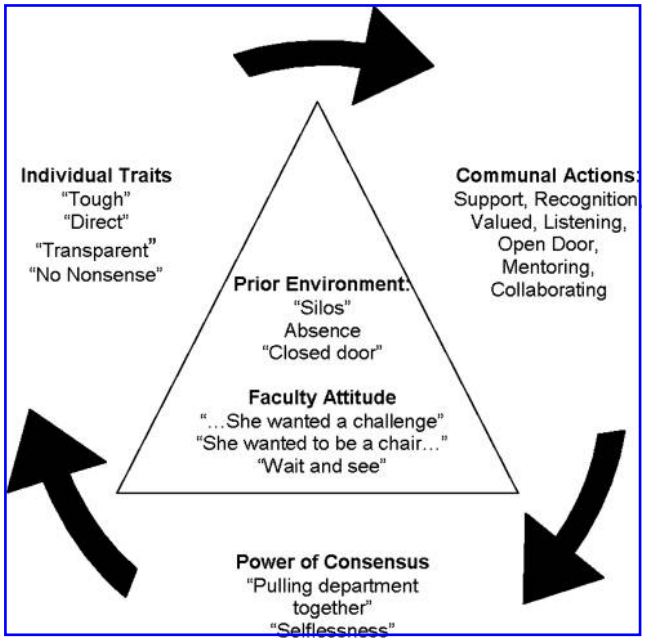

FIG. 2. The proposed theoretical model of this study in which the new chair's tough, direct, and transparent characteristics (Theme II, Table 2B), use of communal actions (Theme III, Table 2C), and ability to build power through consensus (Theme IV, Table 2D) surround and are informed by faculty's perceptions of the prior environment (Theme I, Table 2A) and the new chair's desire to lead.

Theme I: Prior environment

Because each chair began within the previous 36 months (6–36 months), the prior environment was frequently mentioned in the interviews (Table 2A). In addition to noting frequent absences, one faculty member explained, "His office was a corner office far on the edge of one of the hallways which almost no one ever went down . . . it was literally as far away from the center of activity as possible." Some embraced this absence as "complete autonomy—as complete as you can [get]." Other faculty members found that "different silos just popped up where you would have somebody who was powerful, influential, or just had vision . . . [who] would then build a program within the department that was strong . . . but never with any overarching goal of the department." Faculty described departmental processes as "paddling with our oars not quite all the way in" and lacking follow-through. Another explained, "Number one is to . . . pick up from all of the neglect of 10 years prior to her arrival." Although some experienced success with autonomy, others described "neglect" and "damage" in conjunction with "lost opportunity" and "lack of recognition."

Participants reluctantly criticized the "weighed down" and "tired" previous chairs but reported, "We all liked him—he just wasn't ever here." They also described the former chair as not being "open to other perspectives." One woman reported, "I remember raising my hand and saying . . . can't we just keep [program] anyway? And he just looked at me and said, 'No. Next question." Faculty members thought that the former chair "really wanted some individuals to succeed" but with others "distanced himself" when there was conflict.

Some interviewees reflected gratitude to the current chair for taking on the position: "God bless her . . .. I wouldn't want to do that, but she does." "I know that she loves being a leader." "She wanted to be a chair in the true sense of the word." Yet another wondered, "I've always been amazed that there aren't more people vying for this type of position . . .. There really weren't that many highly qualified candidates applying."

Theme II: Characteristics of the current chair: Tough, direct, transparent

Each of the three chairs was seen as exceptionally qualified. The faculty members spoke admiringly of her national prominence, her ability to understand both research and clinical practice, and her personal expertise. Although each current chair was described with unique personality attributes ranging from "soft spoken" to "energetic," three qualities—toughness, directness, and transparency—emerged as common to all (Table 2B). Interviewees contrasted the "leadership void" of the previous chairs with the transparent, direct, and authoritative leadership of the current chairs. One faculty member in describing the chair explained, "The leader really has to make decisions . . .. Communication couched within a strong style is important . . .. There's not going to be consensus on many issues, but I think just keeping everyone informed about decisions that are happening and why is probably the most important thing." One participant praised the chair's transparency as an important factor in allowing her to make tough decisions palatable, stressing that if major changes are made without transparency, faculty respond by "hunkering down." Although the transparency of the chairs' style was uniformly praised, the tough and direct behavior of their chair was not always described positively. One senior female faculty member stated, "She doesn't have all the interpersonal skills to make you feel warm and fuzzy . . .. Our department chair is very abrupt and sometimes isn't schmoozie enough."

Theme III: Using communal actions to "shepherd one's vision into reality"

Interviewees readily identified relationship-building activities by the new chair and noted her consistent focus on development of faculty and staff (Tables 2C and 2D), exemplified by the quote in the theme title. A clear sense emerged that the chairs wanted "each individual, whether it be faculty or staff or resident . . . to succeed and then, the logical consequence of that is that the department succeeds as a whole . . .. I see her really caring about individuals . . . but I see no ego involved." A male faculty member described this as "facilitation of others' excellence." Key factors for creating a communal atmosphere identified by male and female faculty included providing connections, preventing faculty from feeling "lost," and listening to faculty. Examples of statements in this category were: "Her style is one of careful listening and weighing in at appropriate times," and she has found the balance "to be flexible enough that [she's] not telling everybody else what they need to be doing."

It was frequently noted that the chairs took time to know faculty personally—mentoring, offering connections, and soliciting advice on certain issues (Table 2C). One faculty member described a subtle style in facilitating faculty development: "She has a mentoring style that is just inserted into

Table 2A. Representative Sampling of Faculty's Descriptions of Theme I—The Prior Environment

Department A (2 Assistant, 8 Associate, 1 Full Professor)	*Department B (3 Assistant, 3 Associate, 4 Full Professor)*	*Department C (2 Assistant, 3 Associate, 2 Full Professors)*
• The decisions were pretty much always let's do more, but never a real prioritization . . . it was more pie in the sky and nebulous and frustrating.	• [He] had been chair for awhile, and I think you get tired and just let things happen. He was involved in lots of external activities that were very time consuming so . . . [he] shied away from tough stuff, just didn't make a decision.	• There was basically a void, a leadership void . . . . It was a completely hands off, laissez faire, no vision, no unification . . . .
• Nobody really could figure out how decisions were being made and who was in charge and why they were in charge . . . [he] wasn't particularly collaborative . . . is a brilliant person but wasn't great at communicating to groups and tended to alienate people who disagreed with him . . .	• It was a very comfortable place to work, but it lacked some of that edge where I felt like I needed to do more and do it better because somebody was expecting that.	• There's a lot of things that were left undone that really should have been done . . . . The department really had been drifting fairly rudderless for 10 years.
• Absolutely no support . . . . It was like if I don't see you for like 13, 14 years, I'll be okay. He didn't collaborate with anybody [within department] . . . . It's like what are we? Chopped liver here?	• . . . I did not get a sense of true commitment to building, establishing a mission for the department. It just wasn't on his radar, or if it was, it was not conveyed effectively to the faculty members. So it was just sort of like commitment to mediocrity or commitment to status quo.	• He did little when he was here . . . . When he was here, he was working for national organizations and not for us.
• I just think he became a little paralyzed at times about how to deal with conflict.	• Our previous chair had been here a long time . . . and there was the perception I think that things were not going to change . . . . There was a stagnancy . . . . Also, the chair . . . would make decisions without involving those affected.	• We were a department that had been doing fine, but benignly neglected . . .
• He did not do as well with conflict and was not as open to other perspectives and came up with some ideas, didn't have a lot of buy in, but just stayed with it because that's what he wanted to do.	• [He] was at the end of a 10-year tenure, and I think at that point, most people just naturally become less energetic and less enthusiastic and less effective.	• I think he's a nonconfrontational person . . . . Unfortunately, that led to disagreements when everybody left the room and they all thought different things were happening because he agreed with all of them.
• We've had several years of a chair whose leadership style was relatively distant from the day to day workings of most of clinicians and researchers . . . . I don't know if that's an absence of leadership or a hands-off style of leadership . . .	• We were really lacking direction for a long time . . . . The chair before [was a] great guy, amicable, very collegial, but the details of running the department were let go	• A down sloping in terms of the visible and proactive leadership . . . . We'll deal with problems as they come along, not really create new projects . . . .
• Decisions were perceived to be made in dark rooms or in the background so that people didn't understand	• I hardly ever met with him. Most of my interactions were in the hallway and were just kind of informal . . . . When I did meet with him . . ., the responsibility was always on me to fix a problem	• There was no leadership. Very simple . . . . We were so lost. The former chair of the department really did not guide the department at all and we were floundering, struggling for guidance . . . . • We really had no direction . . . basically the previous chair, he doesn't have any leadership skills . . . so that's why our department has kind of just faltered and lingered because . . . there hasn't been anyone representing us that has had any interest in moving us forward.

Table 2B. Representative Sampling of Faculty's Descriptions of Theme II—Characteristics of the Current Chair

Department A	*Department B*	*Department C*
Faculty perspectives on tough, direct, and decisive characteristics of the chair		
• Coming in she's made some decisions, she's gathered data . . . but also clearly establishing "I get to call these shots and here's what's going to happen. I'm open to feedback, but here's what's going to happen."	• She is much more assertive and focused and less nurturing than the stereotype of a woman in her situation . . . . She seems to not shy away from hard decisions.	• Although she's a better listener, she's also much tougher and has an edge that makes you listen more . . . . She's tough but tries to build consensus.
• She addresses issues head on and doesn't shy away from conflict or issues that are difficult or touchy.	• She's sort of a "shipshape" kind of leadership style. I think she's very crisp and very precise.	• She is willing to make a decision even though that may not be a popular decision . . . . If you had told me that anyone in this department would be able to get everyone to . . . show up . . . . I would have told you, you were crazy . . . .
• I think she's direct . . . not afraid to make decisions and . . . not afraid to tell people things they don't necessarily want to hear . . . . She really likes direct communication so you can say, I think you're screwing up here and . . . in that one instance she listened and was appreciative and not at all offended . . .	• I think that people know that she's very direct . . . . You have to have some faith that what you're doing, you've gone through the process, you've made the right decision, and it's time to act on it. I think she's done very well with that.	• When she calls a meeting, you show up . . . . I think she's established herself as a serious, tough person willing to make difficult decisions quite quickly just like any man would have and she has pretty instantly gamered the respect of the faculty.
• I think the thing she said that everyone remembered was "I'm not afraid of conflict and I like direct communication" and I think those were things that people really wanted, that they knew when they were told something they could trust that.	• She also is able to balance [fairness] with the demonstration to be able to make a decision . . . . She was very firm and she was very direct . . . . She doesn't back down.	• It's very clear that you have to meet her expectations or else you're liable to be history.
• More than all the other chairs we've had, she seems to be a concrete decision maker.	• So she doesn't sugar coat things. She's very direct . . . and is able to get problems solved in a productive way.	• She communicates exactly what she wants and she sends out emails . . . . There's no guessing . . . . She came in and had meetings right away about new structure, how she was going to run things, how things were going to change right off the bat.
• She'll solicit lots of input, lots of ideas and then actively make a choice that is her responsibility and her vision and leadership.	• I see her taking charge by making some decisions,. . . that needed to be done . . . . Very directly she has said if we're going to continue . . ., we need to do these things.	• When she came in . . . right away she actually started meeting with people and identifying that she understood that we did not have very strong leadership,. . . that it was something that was necessary.
	• There's quite a few people who are just excited that there's fresh blood in here that's willing to sort of challenge the status quo and shake things up	
	• She may push people to do better than they're doing or push people to do more than they're doing,. . . because she wants those people to succeed	

(*continued*)

Table 2B. Continued

Department A	*Department B*	*Department C*
Faculty perspectives on the transparency of the chair		
• She has definitely expressed a desire to be transparent in her decisions . . . so that everybody knows what's happening and why it's happening and who decided that it was going to happen.	• When there's something going on that she feels is inappropriate or must be changed, she's very clear	• Fairness and being above board and not having hidden agendas are important.
• I think she's transparent which is good . . . . I think what you see is what you get.	• You want someone that is—you want two-way communication so you know how they feel about what your issues are, you don't have to guess at it. You want to see some agreement between what happens in private meetings and the ultimate actions so you're not surprised by things and feel that people are trying to fool you about something. I think she's very straightforward.	• The dollar amount we all make and how we come to that amount has become transparent so I can . . . look at what all my colleagues do and how they get to where they are . . . . It just really relieves a lot of anxiety . . . . So I think that transparency . . . is really helpful and just developing trust.
• She is being transparent, very clear about her thoughts and ideas and in her interactions with faculty.		• She wants to be transparent . . . .

conversations that she'll have, saying things like, 'that would be really cool to write about.' " One male faculty member thought the chair's kind of mentoring provided a "role model for young faculty," and a junior female faculty member noted that her chair " . . . is somebody who could be a real mentor, an academic mentor for me, which has been lacking in our department" and acknowledged that "for me, being a female, it's a wonderful role model to have."

The chair's communal actions were also revealed through her advocacy within the institution for her department and its faculty: "She's willing to get out there and shake the trees and garner support outside the department." Another woman faculty member echoed praise for such departmental advocacy, noting that her chair is one " . . . who's not afraid to go to the medical school and say, we generate a lot of income, we do a huge service to the community, we generate . . . referrals to this medical school, and you better start listening to us and not treating us like the second cousin . . .." Faculty members in all three departments saw their current chairs as visionary, although many also expressed a wait and see attitude about the chair's long-term leadership capabilities, as exemplified by the statement of this male faculty member: " . . . she is very energetic and well meaning, but it's too early to say how she will do. Even bad marriages start with honeymoons, okay?" Another male tenured professor said, "I think time will still tell."

In line by line coding for overtly negative and positive statements, most related to the previous chair. Of 123 pages of transcription, we identified 18 statements about the current chairs that were coded as overtly negative and 35 coded as clearly positive. Male interviewees accounted for 81% of the text coded negative, and female interviewees accounted for 86% of the text coded positive. Those with negative statements also had positive statements, except for two senior male faculty members whose text accounted for 13 of the 18 negative statements.

Theme IV: Building power through consensus

Although the description of the chair's power (Table 2D) bifurcated from "no power" to "absolute power," interviewees most often described the new chairs as building power through consensus and presence: "She has power because . . . she has consensus . . .. She's built up respect and consensus and people listen to her. And so if you go up against her, you're probably going to lose . . .. She used the power to pull together the department." Faculty members indicated that they listen to their chair because she listened to them as individuals, and they approve of her because "she understood the department, she was willing to be flexible and understood the different needs of different sectors." One female faculty member described how, "She's been doing a lot of information . . . [gathering] and developing rather than making significant changes so far." Another summarized that, "She's been meeting with all of us individually, which I think has really helped see . . . what our needs are, what our thoughts are . . .. It's much more subtle—I can't say there's been any big announcements."

One tenured male faculty member implied that the chair's position is easy and suggested, "She doesn't really have to exert much authority at this point to get cooperation in most venues—everybody is trying to make things work for her . . .." Another male faculty member joked that she has power simply because "the Dean made her chair." One interviewee noted, however, that his chair does not intend to collect the most "popular" opinions, and that "power is power and she will have to exert some." Another described his chair's power as getting "people to work together . . . without stepping on toes" and "getting consensus so that she doesn't have to make decisions on her own . . .."

Not all faculty thought that communication had improved nor felt included in decision making in the department. One

Table 2C. Sampling of Faculty's Descriptions of Theme III—Using Communal Actions to "Shepherd One's Vision into Reality"

Department A	*Department B*	*Department C*
• She'll meet for coffee and just to get to know people on a more personal level . . .. I really value that warmth and that really wanting to connect with people because I never had that feeling before . . . . And I think she's pretty good about acknowledging people's accomplishments.	• [I] had a request for some additional laboratory space and she was very supportive with that . . . . When I go to talk to her, I think she listens, she offers feedback, she doesn't always agree with you, but she's very honest with you.	• So, in general, that's the underlying theme is that I feel like I have a lot of support which I never had before . . . . The only time we could meet was 6 o'clock in the morning and we met . . . and we sat in a quiet place and we spent an hour . . . and she focused on me and my issues and moved ahead from there. So, I felt very heard.
• With the project I'm working on, right away, she saw that "Wow, this is a really innovative project . . . ." So right off the bat, she's basically resonated with the vision and been willing to get together.	• Very early on she seemed quickly to know everyone's name so even though I was part time . . . she very quickly knew who I was, which made me feel valued.	• I think she's very supportive of me personally and my role in the department . . . . My sense is that it's genuine. So I would say that . . . while I am generally a very skeptical person within the academic environment, I am inclined to trust her . . . . I feel supported and fairly trusting of her as a leader.
• She really made an effort to meet with people individually or in small groups and I think that was really appreciated to have one-on-one interaction.	• My interactions with her were positive . . . . She immediately . . . assured me . . . and she has been very even-handed in her dealing with the situation, listening very carefully to both sides and very emotionally supportive of me	• She is trying to be very thoughtful about the decisions that she makes involving key players. I think she is investing a lot of personal energy and time into just being involved in aspects of the department that the chair didn't previously get involved in . . . . When she first got here she made an effort to meet everyone individually within the department.
• She's done a great job of . . . supporting all the talented people . . . . When I've proposed new projects, she's been very supportive and has given me not only the go ahead to proceed but also supported me. She helped realize the projects and lent expertise.	• She wanted to hold people accountable, but she also genuinely wanted to know what people were up to and . . . make it possible for every person in the department to do and be as much as they can be.	• Had a very candid conversation with her . . . . She assumed an appropriate role as someone who really wants to help and develop somebody. And, she came across very genuine . . . . I really appreciate about a chair like we now have is that ultimately your job is to really develop people under you and she's doing a damn good job, I think.
• She's really trying to make sure that everyone's getting valued for what they do . . . that just because this person's not in clinic doesn't mean that they're not valuable or this person does more clinic, they're just as valuable.	• She mostly wants to know . . . that people are doing good things. She's really incredibly supportive. She's interested in what I'm doing. I get the sense she's actually proud of the things I do	• She's incredibly supportive of the area in which I work, of being proactive and making some needed changes in that area, and I know that she's personally very committed and kind of constantly thinking and focusing about it.
• I think that she rightfully has spent a lot of time getting to understand . . . . Her style is one of careful listening and weighing in at appropriate times.	• She asked me . . . to be on a grant that she was submitting . . . . I've met with her maybe one or two times to talk about my own personal goals, but clearly she remembered those things and then offered this opportunity.	• She is very good about communicating through email and communicating with everybody, being inclusive.
• Personally, she has a lot of similar academic interests to me . . . . She understands what I'm talking about. She has good ideas, is somebody who could be a real mentor	• Her approach, I think, was to collect all the data from the relevant people and then to get all those people together to discuss that face to face, so I respected that . . .	

(*continued*)

Table 2C. Continued

Department A	*Department B*	*Department C*
	• So we're working on a project together and . . . [she] made me feel like it was my project, which was good even though it's her name that's gotten us the project. And is very much a give and take. • The priority is research and there's a lot of support . . . a lot of concern and a lot of mentorship that goes on with them.	

senior male faculty member noted feeling outside of the sphere of influence: "I don't feel a part of [the] mission because I haven't been included in [forming] it and nobody's come and asked for my input." Another senior male in a different department said, "There are only a couple of people from whom she seeks much advice." These are both examples of statements coded as negative.

Significance of having a woman chair

We examined statements in which gender and being a chair were mentioned. None of these statements linked being a woman with any doubt in competency to fulfill the chair's duties. One male interviewee did observe that, "The big time guys that came through here took one look at the chair position [and] had little interest." Having a woman as the chair was generally seen as an indicator of positive change in the department (Table 3). Multiple statements from both male and female faculty members suggested that rather than a hindrance, having a woman chair is seen as a source of pride: making colleagues at other institutions "jealous," a confirmation that "we're not stuck in the Dark Ages," and a boon to recruitment. One female faculty member reported, "There's not a more natural department to fill with a woman chair than this department." Women seemed particularly energized to have a female role model, as exemplified by statements in Table 3.

Discussion

We discuss our findings in the context of socialized gender roles, research on leadership, and the qualities deemed desirable for future leaders in academic medicine, concluding that the three women chairs in our study appear to evince all these qualities.

Socialized gender roles and the "think-manager-think-male" phenomenon

A large body of research confirms a deep-seated bias in the assumption that men will be more competent leaders than women, especially in positions historically occupied by men.[14,27–33] Rooted in the different social roles traditionally occupied by men and women is the implicit assumption that women will exhibit more behaviors and traits that fall under the rubric of "communal" and reflect primarily concern for others' welfare (e.g., kind, sympathetic, nurturing, and gentle), whereas men will exhibit more action-oriented "agentic" behaviors and traits (assertive, ambitious, forceful, and independent)[29,34–36] As most leadership positions are also viewed as requiring agentic behaviors, this can lead to what Schein has termed the "think-manager-think-male" phenomenon[30,37,38] and what Eagly and Karau[14] have termed "role congruity" for men in leadership. These implicit assumptions result in more positive ratings of men being considered for or functioning in leadership positions[27,39,40] and simultaneously lower ratings of women (because of their role incongruity), even when accomplishments and credentials are identical.[41] These phenomena have been documented with attitudinal questionnaires[30,42] and in controlled experiments.[39,43] A meta-analysis[44] of 94 studies in which male and female leaders were evaluated found a tendency to favor men over women for competency, especially in male-dominated fields. In the context of this large body of research, it is heartening that competence of the three women chairs in our study never surfaced as a concern in any of the interviews.

In addition to the attribution of less leadership competence to women from the lack of alignment of implicit gender and implicit leadership norms, Heilman et al.[39,43] have repeatedly documented experimentally that when women demonstrate agentic competence in traditionally male leadership positions they may trigger additional negative responses by violating socialized gender norms. Eagly et al.[44] similarly found that women who adopted an authoritarian (i.e., more stereotypically masculine) style were less favorably rated than those who used a more democratic or interpersonal (i.e., more stereotypically feminine) style. In our study, one senior woman faculty member criticized her chair as not being "schmoozie enough" and not "making you feel warm and fuzzy." Such criticisms of agentic women in male-dominated positions are fully consonant with the extant research, which would also predict that similar criticisms would not be leveled at men in the same leadership positions. Perhaps more revealing in terms of the changing views of women's leadership, however, is that the tough, direct, agentic actions of our women chairs were generally not criticized but seen as welcome and effective, even when they were specifically acknowledged to be counterstereotypic (e.g., first statement for Department B in Table 2B).

Several studies provide evidence that clearly competent women leaders in historically male fields can avoid or mitigate negative responses elicited by gender role violation if they also exhibit communal actions, particularly in the professional setting.[28,45] Our findings are fully congruent with

Table 2D. Sampling of Faculty Descriptions of Theme IV—Power Through Consensus

Department A	*Department B*	*Department C*
• I have no sense that she's in it for her own ego or self-gratification or because she wants to have power over others.	• You are expected to be a citizen within the department and to participate in certain activities and that was made clear from the very beginning,. . . to get as much opinion from people as she could . . .. That was the first signs to me that there really was a new sheriff in town.	• Very selfless, sort of sacrificial position where your own fame and advancement really play second fiddle to having the good of the whole in mind of the department, the medical school, the institution.
• I see no ego involved and, in fact, I know that she had to be very, very heavily recruited here—like she did not necessarily want the job. • I believe she was the first choice of both the department and the Dean so that's very nice, for future buy-in on biggish projects, administrative changes, startup packages for the chair, all those things are very valuable.	• She's very prominent and she's the sort of chair that gets things done by talking to people and by walking around and seeing what's going on. • She has a combination of a consensus style so she does get input from everyone, but she definitely has her own ideas and so she'll act on it even if she doesn't think it may be perceived as being popular. I think she's got a very good mix of gathering consensus but also having a backbone and deciding what's right	• She has power because . . . she has consensus—she's built up respect and consensus and people listen to her. So if you go up against her, you're probably going to lose . . .. • She's not a power hungry sort of individual. She's very democratic so I'm sure she has powers that I'm unaware of, but in terms of functioning with the members of the department, of the clinical staff, it's been a fairly decent democracy.
• We're a department of the University so the chair only has the power that's delegated by the University, which is really only at the consensus of the faculty. But since everyone thinks the chair has ultimate power, then she does through their belief systems. • Early on, she met with a lot of people individually, attended meetings and traveled around the state and to different clinics, listening to people. She made people feel like she cared and understood their situations and I think won the trust of people early. • [She] tries to find a plan that's collaborative, that everyone can agree with. So I think she's not one who's going to try to push something down, if people are not agreeable to it.	• As things have come up that have either been issues that she identified or were brought to her attention, rather than just sort of making a decision and saying this is what we're going to do about it. She's been much more democratic about gathering opinions . . .. • The leadership of the department is a mix of democratically decided actions that are moved ahead . . .. We go around the table and let each one of us raise issues that we want to make sure the others know about, get some feedback on. . . .It works very well.	• The authority is really by virtue of providing an exemplary leadership . . . through that process, she would earn a moral authority to make certain decisions. • She knows where she wants things to go, she's trying to get them there, yet she's trying to get the whole department together to make what they want as their goals. • Everybody was involved on all the aspects of who we are as a department . . .. I think she's somewhat struggling with some things that are traditional models . . .. And so I think her style is much more democratic than any other chair I have been with.

this research in that the perceived effectiveness of our three women chairs was attributed to their ability to be both agentic (e.g., "tough," "direct," and "willing to get out there") and communal (e.g., "really caring about individuals," and"supporting all the talented people"). Our three chairs were further able to establish through their words and actions their communal motivation for becoming leaders, thus avoiding the perception of being self-promoting. Research from controlled experiments concludes that it is particularly important for women leaders not to appear to be self-promoting. Ridgeway,[46] for example, found that proof of group-oriented rather than self-oriented motivation was a prerequisite for effective leadership by women (but not men) in small groups. In different experimental paradigms, Rudman[47,48] has shown that women (but not men) who are perceived as self-promoting suffer social penalties. This research would predict that the effectiveness of our chairs is enhanced by (or even predicated on) the view by their faculty that they are motivated to help others and benefit the department and that they are not self-promoting.

Although negative responses triggered by women leaders can be subtle,[49,50] the tone used and statements made by the faculty regarding their chair seemed overall to be genuinely positive. This perception is confirmed by finding twice as many statements that could be coded as overtly positive vs. overtly negative. Women offered a larger percent of state-

Table 3. Representative Sampling of Faculty's Perspectives on Significance of the Appointment of a Woman Chair, Separated by Gender

Responses from female faculty members (4 Assistant, 9 Associate, 2 Full Professors)	*Responses from male faculty members (2 Assistant, 6 Associate, 5 Full Professors)*
We've never had a woman chair or interim chair, and so I think the time was ripe for there to be a woman chair, but also that there should be a chair of the caliber of this chair available . . . . For me, I certainly didn't want the same old, same old, patriarchal, stifling [Laugh] environment . . . . So it feels good.	I'm very glad we have a woman as a chair . . . . It's helpful for role models and getting medical students . . . to see people in positions. We've now had I think over a decade where the medical schools are half women, half men, but the leadership is 90% men
Being a woman in a position that is very rare for women to hold, she's an amazing role model.	Given the "glass ceilings" you see in this specialty and many organizations, it's exciting to have a woman as a chair.
It is wonderful to see her consider women faculty, recruit women faculty. People are interested in coming here because there's a woman chair.	I think it's good for us to have a woman as chair . . . . I'm not sure it does anything for the prestige up or down, but it does confirm that at least we're not stuck in the Dark Ages.
I know that I have colleagues at other institutions who are jealous that I have a strong female chair	I think for the University to have more women in leadership positions is good for very many reasons. Not the least of which that there are more and more women in medicine and it's bad if from the top down things look different than from the bottom up. I'm quite proud that we're making a dent in fixing that existing . . . inequity . . . . She's chosen because she's a very strong candidate.
I think more of that she can do the job just as well as a male could do the job. But, I think as a role model, it's a very nice role model to have.	I actually like working with women in leadership roles . . . . They get the importance of the emotional piece a little bit more sometimes than men do, and I think that really helps build trust because what really makes things work is to recognize those nonphysical aspects of the system . . . . I particularly in this specialty that requires that we use all aspects of our brain in leadership, not just the analytical side.
We're very happy to have a female in leadership . . . . We have not had one in our history. And there are many, many young women faculty who are in that sort of family stage and we wanted someone who would really get that piece and . . . realize how valuable we all were.	

ments coded positive, and the only faculty members who were consistently negative were two senior men whose statements involved feeling left out of decision-making channels or referred to some specific personal negative interaction with the chair. We cannot explicitly invoke gender in their negative perceptions. However, the higher status accorded to men in socialized gender roles[51,52] would predict that senior, experienced male faculty members would feel more negative toward a female chair than a male chair. This is consistent, again, with Eagly's work,[44] in which women in leadership were evaluated more harshly by male than female evaluators. Perhaps these faculty members had a closer relationship with the previous chair or had unfulfilled expectations of having greater influence with the new chair because of their long tenure in the department. For whatever reason, their statements run counter to those of most of the participants interviewed, including other senior male faculty.

Effective leadership

In spite of the persistent mental model of leaders as male, research on gender and leadership indicates only small effect sizes in differences in effectiveness of male and female leaders.[53–55] Differences in effectiveness are also found to be influenced by the degree to which the role is gender typed (i.e., male leaders are viewed as more effective in male-dominated fields). Similarly, differences in leadership style between men and women are small. In one meta-analysis of 162 wide-ranging studies on leadership style, the strongest evidence for gender difference in style was a tendency for women to adopt a more democratic or participative style and for men to adopt a more autocratic or directive style (although this difference was less in male-dominated fields).[56] The recurring description of each of our chairs as "collaborative" and "democratic" is consistent with this previous research.

Considerable research on leadership describes three general styles of leaders: transformational leaders who inspire and mentor their subordinates, transactional leaders who largely reinforce the rules of the organization, and laissez faire leaders who are essentially absent when decisions need to be made.[57,58] Transformational leaders are found to be the most effective across multiple fields,[58] including academic department chairs[59] and physicians.[60] Eagly et al.[54] performed a meta-analysis of 45 studies that measured gender differences

in these three categories of leadership. The effect sizes were small but consistent in finding that women in leadership were more likely than men to exhibit more features of a transformational style. In an academic setting, Rosser[61] examined the leadership effectiveness of 22 deans and also found that women were more likely than men to be viewed as effective and to exhibit qualities consistent with transformational leadership. The descriptions of the behaviors of our three women chairs are consistent with transformational leadership: listening to all departmental stakeholders, developing and exciting constituents toward a common vision, instilling a sense of pride, and nurturing and mentoring subordinates. Congruent with Eagly et al.'s findings,[54] our women chairs were also comfortable with the transactional activities of management (e.g., a "ship-shape" leadership style, willing to make unpopular decisions). In contrast to the numerous statements consistent with a laissez faire leadership style of the previous chairs, no statements suggested this view of the current chairs.

Eagly and Carli[62] note that historically appointing women to leadership positions often signifies a change in values, direction, and goals. Our interviewees frequently express this sense of their new chairs. Ryan and Haslam[63] referred to a "glass cliff" phenomenon whereby women may be appointed to high status positions historically occupied by men when circumstances make the position precarious or less attractive. Some element of this is reflected in the recurrent description of departmental "damage," "neglect," and the chair's need to "clean house" and also in the observation by one faculty member that prominent male candidates for the position showed little interest. Overall, however, there was no sense that the department had lowered its standards in recruiting a woman chair.

Desirable qualities for leaders in academic medicine

Much has been written on the need for a new style of leader in academic medicine,[1–3,64–67] calling for the future-oriented department chair to have strong communication skills, to be a good listener, to possess teamwork skills, to effectively develop others through mentorship and coaching, and to be able to articulate a shared vision. Souba[2,65] stresses that leaders in the current and future climate of academic medicine must be skilled at building relationships, enhancing networking, and fostering human connectivity. Many of these are transformational leadership qualities, and all are consistent with descriptions of our three department chairs by members of their respective faculties. Souba further states that academic medicine needs leaders who have "softer and more qualitative than quantitative" characteristics than past leaders. Given this emphasis on the importance of stereotypically female skills and traits, the invisibility of women in the multiple articles on leadership in academic medicine is striking, as is the absence of any reference to the extensive experimental, field, and theoretical research examining gender and leadership.[1–3,66] Nevertheless, our three women chairs appear to have met all Souba's criteria for desirable physician leaders in academic medicine.[2,65,68–72]

Limitations

The findings of our study are limited in generalizability by the nature of qualitative research, which is highly dependent on context (e.g., time in history, nature of the AMC, unique features of the departments studied, and short tenure of the current chairs vs former chairs). The generalizability of the themes that emerged from our analysis will be tested in how well they resonate with the lived experiences of others in similar situations and by future research. However, this work stands as an exploratory investigation into the relatively new phenomena of clinical departments in AMCs chaired by women. Qualitative research paradigms believe that the researcher is an important part of the research and that analysis is invariably and directly influenced by the researchers' perspectives. This is openly acknowledged as "researcher bias."[23] In this tradition, we acknowledge that we, the researchers, are all white women raised in the United States who are at different career stages in academic medicine (medical student, postdoctoral fellow, and tenured professor). None of us are members of the departments studied, but we are all affiliated with the institution where the research took place.

Conclusions

This exploratory study suggests that the culture of academic medicine has moved beyond questioning women physicians' competence to lead once they are in top organizational leadership positions. The findings are consonant with experimental research indicating that women leaders are most successful when they pair stereotypic male (agentic) behaviors with stereotypic female (communal) behaviors. All three women chairs in this study are exhibiting behaviors and traits characteristic of transformational leaders that are heralded as desirable for current and future leaders in academic medicine. Our findings underscore the ability of women physicians to succeed in negotiating the complexities of gender to become and function as effective department chairs. This work also suggests that continued silence on gender issues in projecting the future leadership of academic medicine could cause the unaffordable loss of many potentially transformational leaders.

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Searching for Excellence & Diversity: Increasing the Hiring of Women Faculty at One Academic Medical Center

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Abstract

One opportunity to realize the diversity goals of academic health centers comes at the time of hiring new faculty. To improve the effectiveness of search committees in increasing the gender diversity of faculty hires, the authors created and implemented a training workshop for faculty search committees designed to improve the hiring process and increase the diversity of faculty hires at the University of Wisconsin–Madison. They describe the workshops, which they presented in the School of Medicine and Public Health between 2004 and 2007, and they compare the subsequent hiring of women faculty in participating and nonparticipating departments and the self-reported experience of new faculty within the hiring process. Attendance at the workshop correlates with improved hiring of women faculty and with a better hiring experience for faculty recruits, especially women. The authors articulate successful elements of workshop implementation for other medical schools seeking to increase gender diversity on their faculties.

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The National Institutes of Health, the American Medical Association, and the Association of American Medical Colleges have all expressed concern about the underrepresentation of women in academic medicine—particularly in leadership positions. Despite impressive increases in the number and percentage of women who have earned MD degrees since the 1970s (9% in 1970, 25% in 1980, 36% in 1990, 43% in 2000, and 49% in 2007[1]), women physicians continue to be underrepresented in the faculty ranks. In 2008, 40% of assistant professors, 29% of associate professors, and 17% of full professors were women.[1] Rectifying this gender imbalance in the highest levels of academic medicine is a national imperative, not only to ensure that U.S. medical schools make optimal use of the talent they train[2] but also to help ensure that future physicians train in institutions that reflect the composition of the population of the United States, that women medical students will have access to role models who may inspire them to consider careers in academic medicine,[3–7] and that women's health issues continue to receive attention in curricula, research, and public policy.[8,9]

The National Science Foundation (NSF) has noted a similar gender imbalance in the leadership of academic science and engineering. After years of attempting to increase gender diversity in U.S. academic science and engineering leadership through awards to individual women (e.g., Research Opportunities for Women, Visiting Professorships for Women, Career Advancement Awards, Faculty Awards for Women, and Professional Opportunities for Women in Research and Education), the NSF changed course in the early 21st century and chose to focus on the institutions in which academic scientists and engineers work rather than on individuals within those institutions.[10] In 2001, the NSF announced the ADVANCE program with a new solicitation for proposals that would result in "institutional transformation." The goal of the ADVANCE program is to increase the participation and advancement of women in academic science and engineering; as such, it is an effort focused primarily on transforming the policies, practices, and climates for faculty in U.S. research institutions.[10,11]

The University of Wisconsin–Madison (UW-Madison) received one of the first ADVANCE Institutional Transformation grants in January 2002. The ADVANCE team coprincipal investigators (M.C., J.H., J.T.S.) at UW-Madison formed a research center—WISELI: Women in Science & Engineering Leadership Institute[12]—to centralize all ADVANCE-related activities. WISELI focused immediately on the faculty hiring process as an essential element of success. Although multiple junctures in a scientist's career determine whether an individual reaches the highest leadership levels (e.g., sequential promotion from assistant professor to associate professor to professor),[13,14] perhaps one of the most critical junctures in the faculty career is the point of hire. The faculty hiring process of any university determines the demographic composition of its faculty for decades

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because a faculty career can span 20 to 40 years. Emphasizing the search and screen process and working to add more women to the faculty by reforming that process is an important place to begin in order to achieve the goal of increasing both the proportion and number of women faculty. To accomplish this goal, WISELI designed an intervention for UW-Madison faculty hiring committees that incorporated the following:

- principles of adult learning, including peer teaching and active engagement in the learning process[15–19];
- tenets of intentional behavioral change, which state that an individual must first recognize the existence of a problem (e.g., gender bias) before committing to behaviors aimed at reducing the problem[20–24]; and
- recommendations from organizational change research that emphasize the importance of leadership, resources, engaging employees in the change, and creating a sense of urgency.[25–31]

The University of Wisconsin School of Medicine and Public Health (UWSMPH) participated in this campus-wide initiative.

Needs assessment

The persistent gap between the number and percentage of women medical graduates and their representation on the faculties of U.S. medical schools demonstrates the need to address the process of hiring faculty. Additionally, in 2003, the UWSMPH fell below the national average for recruiting women faculty.[32] We began to assess the need for a new hiring approach by examining existing institutional practices of recruiting and hiring new faculty. In the UWSMPH, the general practice for faculty recruitment is for the department chair to appoint search committees of approximately 4 to 10 faculty and staff members and to assign a committee chair or two cochairs. The UWSMPH dean appoints faculty and staff to serve on search committees for department heads. These search committees are responsible for conducting national searches, for recruiting and evaluating job applicants, and for selecting the final candidates who will visit campus and interview for the available position. The role search committees play in determining which candidate receives a job offer varies across departments. Search committees' responsibilities may end with the selection of finalists; committees may rank the finalists and submit their rankings to the department chair and/or the departmental executive committee (composed of all faculty members at the associate professor level or higher); or the committee may recommend a particular finalist for hire. The departmental executive committee has final responsibility for either approving the selection made by the search committee or department chair or for actually selecting the candidate. These procedures are in accordance with UW-Madison's policies on faculty hires.[33,34]

After the evaluation of existing hiring practices, we embarked on a series of discussions about the search process with administrative leaders, department chairs, senior women faculty, and human resources personnel. We also compared typical faculty search processes with those for senior academic leadership positions (e.g., assistant professor versus dean). We reviewed many documents regarding women and minorities in academia along with research from multiple disciplines on unconscious biases that might influence the hiring process.[35–38] During these discussions, faculty, chairs, and administrators expressed a genuine desire to increase the gender diversity of their departments but recognized that they did not have the knowledge, skills, or experiences to actually effect this change. They acknowledged that search committees frequently served primarily as evaluating bodies and did not engage extensively in recruiting, that committee members and chairs may or may not have had previous experience on search committees, and that neither committee chairs nor members received any form of training or systematic guidance on how to recruit and evaluate faculty. Although the *UW-Madison Search Handbook*[34] exists, most faculty and chairs have not been aware of it. This handbook provides valuable and useful information, but the information is primarily procedural in nature and does not directly address the unconscious biases and assumptions that may affect the evaluation of and behavior toward candidates.

These discussions with faculty and administration, together with the research literature, identified two primary areas of concern: (1) search committees do not actively recruit women and minorities into the pool of applicants, and (2) unconscious biases may be influencing evaluations of women and/or minority applicants. In addition, discussions with women faculty indicated that women and underrepresented minorities frequently endured negative experiences (e.g., questions about marital status or future childbearing plans) during on-campus interviews and that providing education about inappropriate questions and creating a positive interview experience was critical for hiring women and minority faculty. Finally, all parties expressed the need for providing search committee members with both basic training in good search practices and practical advice for the logistics of conducting a search.

The discussions conducted during this needs assessment confirmed that the decentralized nature of our campus and the strong tradition of faculty governance combine to form a culture at UW-Madison in which faculty generally view workshops emanating from campus administration as a nuisance. Faculty and administrative leaders, however, place high value on programs that the faculty initiate, especially when they include research and scholarship. Thus, we chose to locate the orchestration of the workshops within a research center (WISELI) rather than in the Office of the Provost or other administrative office.

WISELI sought to create a sense of urgency for institutional change—capitalizing on individuals' motivations to be more effective members or chairs of search committees and aligning its approach to faculty development with institutional core values—by using a data-driven, evidence-based method. To accomplish all these objectives, WISELI sought and received visible support from campus leaders including an endorsement from the dean of the UWSMPH who publicly agreed that the effort to diversify faculty and improve hiring addressed an institutional need. We also consistently emphasized that these workshops were part of a research program supported by the NSF with faculty principal investigators. To increase self-efficacy among search committee participants for recruiting and evaluation tasks, the workshops integrated research-based content knowledge with practical skills that

participants could immediately apply and practice in a real-world context.

Workshop Design

WISELI convened a design team of 12 members consisting of faculty and staff from across the campus to develop a workshop or workshop series that would educate faculty and staff about effective practices surrounding the hiring of faculty. The design team included WISELI codirectors who have experience in education[39] and behavioral change[24]; WISELI staff (J.T.S., E.F., C.M.P., J.H., M.C.); and other stakeholders from across the campus such as faculty and chairs from a variety of departments (including from the UWSMPH), directors and personnel from human resources, the UWSMPH ombudsperson, and representatives from the Office of the Provost. WISELI leaders selected these members on the basis of their experience, expertise, and commitment to improving the hiring process and increasing diversity in faculty ranks. Relying on the initial needs assessment, the design team extensively discussed workshop content and structure as it developed materials. The design team met once a month over an eight-month period, with each meeting lasting approximately two hours. Several team members spent additional time outside of the meetings locating materials, talking to colleagues and experts, and preparing research summaries to inform the team's work. The result was a first workshop piloted in 2003. As part of an ongoing development process, participants in the pilot workshop provided feedback that influenced the final materials and workshop design. Formally named "Searching for Excellence & Diversity,"[40] WISELI began implementing the workshops campus-wide in 2004. WISELI advertised the workshops primarily to chairs and members of search committees but also encouraged others (department heads and departmental administrators who assist with a search) to attend as well.

Workshop Format and Content

Whereas the goal of the NSF ADVANCE program is to increase the participation and advancement of women in academic science, the goal of an academic unit is to increase diversity more broadly, including (but not limited to) gender and racial/ethnic diversity. In the Searching for Excellence & Diversity workshops, WISELI emphasizes that the concepts and practices put forth in the workshop are broadly applicable to recruiting individuals from any group that has been historically underrepresented on the faculties of academic health centers. WISELI evaluated the workshops with regard to gender, but the actual workshop content defines diversity more broadly.

The content of the workshops revolves around the "Five Essential Elements of a Successful Search."[41] The first element, *Run an effective and efficient search committee*, provides tips and techniques for organizing the search process, running committee meetings, and successfully utilizing the time and energy of all search committee members. Presenters stress the importance of following state laws and university policies and procedures for the search, and they introduce relevant selections from the university's official search handbook.[34] Presenters also advise committees to establish consensus about ground rules and guidelines they will rely on to conduct their search. Ground rules and guidelines should include items such as a clear understanding of committee members' roles and responsibilities, policies on attending committee meetings, decision-making procedures, and evaluation criteria for the position.

In the second workshop element, we discuss the importance of *Actively recruit[ing] an excellent and diverse pool of candidates*. Before addressing recruitment, we recommend that search committee members engage in a general discussion about diversity and the benefits a diverse faculty offers to the university, the UWSMPH, the department, and the students. We provide participants with the background and language needed to discuss diversity within the search committee. We provide participants with examples of comments or opinions search committee members might share (e.g., "I would not want to compromise excellence for diversity") and with evidence-based responses they can use (e.g., "Excellence and diversity are not mutually exclusive"). We also provide participants with research they can rely on to argue for diversity (e.g., diversity is essential for achieving excellence[42–44]). We then turn to small-group discussion and ask participants to share successful strategies they have used to build a large and diverse applicant pool. We supplement this discussion by providing additional tips and resources for building the pool. These resources include publications targeted toward diverse audiences and information about the following: organizations serving underrepresented groups, scholarship/fellowship programs for members of underrepresented groups, and schools with a history of awarding degrees to members of underrepresented groups. Our advice stresses the need to actively recruit diverse applicants by making personal contact with prospective candidates, by expanding individual professional networks to include members of underrepresented groups, and by relying on these networks to recruit applicants. We raise awareness about some common myths and/or assumptions that might limit the diversity of the applicant pool, and we counteract these myths with research findings and other arguments.[37] For example, one common assumption is that "there are no women/minorities in our field, or no qualified women/minorities." We highlight that although women or minorities may be scarce in some fields, it is rarely the case that there are none. Another common assumption is that "excellent candidates need the same credentials as the person leaving the position." We note the many examples of highly successful people who have taken nontraditional career paths, and we point specifically to the fact that several successful women in academic leadership positions did not serve as chairs before becoming deans.[45]

The third element, *Raise awareness of unconscious assumptions and their influence on evaluation of candidates*, is the most innovative piece of this workshop. In this section, we present to workshop participants research on unconscious biases and assumptions from a variety of fields including psychology, sociology, economics, linguistics, and organizational behavior. This research shows that "even the most well-meaning person unwittingly allows unconscious thoughts and feelings to influence seemingly objective decisions,"[46] that both men and women share the same assumptions about gender, and that when women enter historically male-dominated arenas, these

assumptions can lead both men and women to underestimate the competence and potential of women,[47–49] to undervalue women's contributions,[50] to fail to recognize women's leadership abilities, and/or to regard competent women as overly aggressive or hostile.[51–53] We target our presentation of this research to implications for the hiring process. We also discuss how participants might inform the other members of their committees about this research and its implications for the review of candidates. We provide participants with a case study as a basis for discussion during the workshop and with multiple copies of a brochure entitled "Reviewing Applicants: Research on Bias and Assumptions,"[54] which they can take back to their committees to help initiate discussion with their colleagues. We intend for this portion of the workshop, especially its research-based focus, to enable participants to recognize both the existence and the power of unconscious gender bias and to motivate them to commit to intentional behavioral change in the context of their own search committees.

The fourth element of the workshop, *Ensure a fair and thorough review of candidates*, provides concrete logistical advice for organizing the review of candidates and draws on relevant research studies to provide strategies for minimizing the influence of bias and assumptions on the evaluation of candidates. We emphasize studies with randomized controlled designs of interventions that have successfully mitigated the impact of bias. One example is a study suggesting that an inclusive decision-making strategy (i.e., deciding whom to keep in the pool) is more effective at minimizing bias than an exclusionary decision-making process (i.e., deciding whom to remove from the pool[55]).

The fifth element, *Develop and implement an effective interview process*, provides advice and suggestions for arranging campus visits and interviewing candidates. This section encourages search committee members to regard the campus visit not only as an opportunity to evaluate candidates but also as an opportunity for the candidates to evaluate the department, the UWSMPH, the university, and the community. To concentrate attention on the perspective of the candidate, participants engage in paired discussions of their own experiences interviewing for an academic position. Then, formal presentations provide practical advice for ensuring that the campus visit is a good experience for the candidate—whether or not that candidate is hired. We encourage search committees to create an environment in which the candidate can perform to the best of his/her abilities. This includes, but is not limited to, recommending that participants educate all departmental members and others who will interact with candidates about which questions are and are not appropriate to ask. We also stress the importance of personalizing the visit for each candidate by determining his or her needs and by providing opportunities for the candidate to learn about the campus and the community. We strongly recommend providing every candidate with the opportunity to meet with someone on campus who is not involved in the evaluation process but who can answer questions about local resources, services, communities, lifestyle, and culture that may be crucial to the candidate's decision to accept a job offer.

The materials we have developed for the Searching for Excellence & Diversity workshops are flexible, and they allow us to reach search committees in any number of ways. In the UWSMPH, we implemented a one-session workshop, 2.5 hours in length, which we offer to faculty twice each semester to accommodate busy schedules. (The first two workshops offered in 2004 were 2 hours, and this was not long enough, so subsequent workshops were all 2.5 hours.) Each workshop begins with an introduction from the dean or vice dean of the UWSMPH. This allows the dean's office to demonstrate strong support for the effort to improve the search process and diversify the faculty. To foster peer learning and answer questions of particular relevance to the UWSMPH, faculty and staff from the UWSMPH present most of the material and serve as small-group facilitators. Each small group consists of 6 to 10 participants. In addition to faculty and staff from the UWSMPH, we include WISELI personnel, the director of the campus Office of Equity and Diversity, and occasionally (depending on availability) representatives from UW-Madison's Offices of Legal Services, the Office of the Provost, and/or the Office of Community Relations. All presenters and facilitators invite participants to consult with them throughout the search process. The workshop concludes by providing participants with "Top Ten Tips" to summarize the content of presentations and discussions (List 1).

In the UWSMPH, WISELI offered 12 workshops between 2004 and 2007.

List 1

Searching for Excellence & Diversity: Top Ten Tips for Faculty Search Committees*

1. Build rapport among committee members by setting a tone of collegiality, dedication, and open-mindedness.
2. Run efficient meetings and empower all committee members.
3. Make sure committee members know what is expected of them, and establish ground rules for such items as attendance, decision making, treatment of candidates, etc.
4. Assign tasks and hold committee members accountable.
5. Air views about diversity and other controversial issues.
6. Identify people and places who can refer you to potential candidates.
7. Search broadly and inclusively; save sifting and winnowing for later.
8. Recruit aggressively and make personal contact with potential candidates.
9. Discuss research on assumptions and biases and consciously strive to minimize their influence on your evaluation of candidates.
10. Ensure that every candidate interviewed on campus—whether hired or not—is respected and treated well during his or her visit.

* Source: "Searching for Excellence & Diversity: A Guide for Faculty Search Committee Chairs." Available at: http://wiseli.engr.wisc.edu/docs/SearchBook.pdf. Back Cover.

Attendance at each workshop varied from approximately 12 to 40 participants. Tenured or tenure-track (TT) faculty from 17 of 26 departments participated in at least one workshop from 2004 through 2007. Of the approximately 385 TT faculty in UWSMPH, 35 (9%) have participated in a workshop. Thirteen of these faculty attendees were UWSMPH department chairs or section heads.

Evidence of Workshop Success

The UW-Madison institutional review board (IRB) approved the data-collection protocols that allowed WISELI to evaluate the effectiveness of the workshops on a variety of measures. The IRB approved evaluation forms and a faculty-climate survey instrument. We obtained signed consent from every workshop participant, allowing us to link workshop attendance with both individual and department-related outcomes. As part of the confidentiality agreement with the IRB, we could collect department-level data as long as we presented only data that are aggregated above the department level.

Postworkshop evaluations completed anonymously online within 72 hours of the workshops provide encouraging evidence that participants have a good experience in the workshops. WISELI staff, workshop facilitators, and presenters do not complete evaluations. Fifty-nine of 78 (76%) faculty and staff workshop participants in the UWSMPH completed postworkshop evaluations. All respondents indicated that time spent in the Searching for Excellence & Diversity workshops was well spent. Approximately 93% (n = 55) would recommend the workshop to other faculty, and the majority (n = 42; 71%) indicated that it was "very useful" (as opposed to "somewhat useful" or "not useful"). Fifty-four respondents (92%) included write-in comments, and of these about half (n = 25; 46%) indicated that "recognition of unconscious bias and assumptions" was the most valuable knowledge gained in the workshop.[56]

Although knowing that the postworkshop evaluations are positive is important, knowing whether the workshops are meeting their goal of diversifying new faculty hires in the UWSMPH is even more so. Because we emphasize actively increasing the number and percentage of women in the applicant pool, analyzing pool data before and after implementation of the workshops would be useful; however, we have not had access to reliable pool data at UW-Madison. Instead, we have relied on hiring data to analyze the effectiveness of the Searching for Excellence & Diversity workshops. We employed a quasi-experimental design, comparing the outcomes for departments that sent at least one TT faculty member to a workshop between 2004 and 2007 with outcomes for departments that sent no TT faculty to the workshops in that time period. We compared hiring outcomes in 2000–2004 (prior to the 2004 workshop implementation) with those in 2005–2008. We also examined whether a dose–response effect exists, such that participation by one department in more workshops would result in an improved outcome in terms of hiring women faculty to that department. We have four years of postworkshop data and five years of preworkshop data. We use five years for the preworkshop period rather than four because this allows us to include all 26 departments in the UWSMPH in our analyses. Two departments did not hire any faculty between 2001 and 2004. They would have had to be excluded from analysis if we used just the four-year window. Because we are comparing percentages and not raw numbers, the addition of one extra year to the preworkshop period does little to change the overall percentages, but it does allow us to have a larger sample size, thus increasing our statistical power. The participating departments (N = 17) had 88 total hires in the preworkshop (2000–2004) period and 75 total hires in the postworkshop (2005–2008) period. The nonparticipating departments (N = 9) had 35 hires in the 2000–2004 period and 18 hires in the 2005–2008 period. Ten UWSMPH departments participated in one workshop between 2004 and 2007, and seven departments participated in two or three workshops during that period.

In addition to examining whether participating departments hired more women faculty than they had in the past, we compared newly hired UWSMPH faculty (male and female) satisfaction with the hiring process before and after workshop implementation to determine whether satisfaction differed for faculty hired into departments that participated in the workshops compared with faculty hired into departments that did not participate. For this, we used data from the *Study of Faculty Worklife at UW-Madison* in 2003[57] and 2006.[58]

WISELI conducted the *Study of Faculty Worklife at UW-Madison* survey in 2003 (prior to workshop implementation) and in 2006. All faculty at UW-Madison received the survey instrument. The campus-wide response rate was 60% (n = 1,338) in 2003 and 56% (n = 1,230) in 2006. In the UWSMPH, 57% (n = 208) of faculty responded to the survey in 2003 and 54% (n = 208) responded in 2006. As is common in most surveys of this type,[59] women in the UWSMPH responded at higher rates than men in both survey waves. Nonwhite faculty responded at lower rates than white faculty in 2006; however, whites and nonwhites responded at similar rates in 2003. Response rates for both surveys are very similar across other demographic characteristics (rank, years of service, department, etc.).

Hiring outcomes

UWSMPH departments participating in at least one workshop between 2004 and 2007 experienced an increase in the percentage of women faculty hired between 2005 and 2008, compared with a decrease in the percentage of women hired into departments that did not send one faculty member to a workshop between 2004 and 2007 ($P < .05$, Figure 1). Because of the small number of observations (N = 26 departments), we ascertained statistical significance by bootstrapping the odds that a participating department increased the proportion of women hired in the period after training began compared with departments that did not participate (OR = 6.29; 95% confidence interval = 1.05–24.86).

Because some departments participated in more than one workshop over the course of four years, we had the opportunity to examine whether a relationship exists between the number of workshops a department was exposed to and subsequent hiring of women faculty in that department. As shown in Figure 2, a dose–response effect does seem to exist: More women have been hired in departments participating in more workshops (though the marginal increase

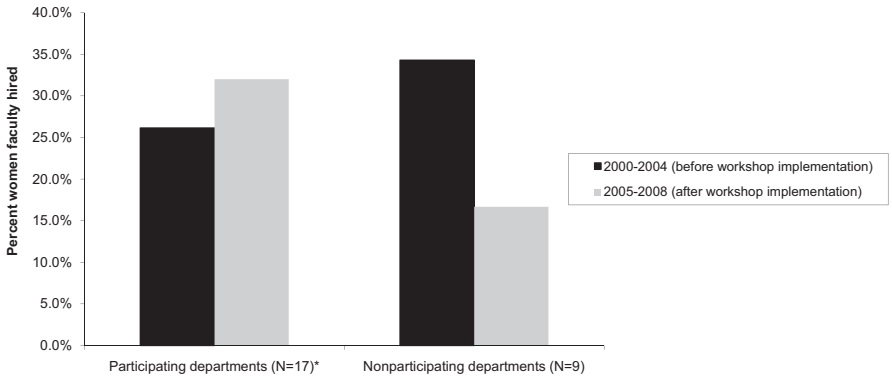

Figure 1 Percentage of new women faculty hired in the University of Wisconsin School of Medicine and Public Health by any workshop attendance, 2000–2008.

in proportion of women hired does not necessarily increase).

Although attendance at the WISELI Searching for Excellence & Diversity workshops is not likely to be the only explanation for the improved record of hiring women in participating departments, some evidence does seem to show a relationship between attendance and increased hiring of women faculty in the UWSMPH at UW-Madison.

Satisfaction of new faculty with the hiring process

We examined the percentage of new faculty who "agree strongly" to the following three survey items in the *Study of Faculty Worklife at UW-Madison* survey:

- "I was satisfied with the hiring process overall."
- "Faculty in the department made an effort to meet me."
- "My interactions with the search committee were positive."

Table 1 shows the responses of new UWSMPH faculty in 2003 (hired between 2000 and 2002, prior to the implementation of the workshops) and new UWSMPH faculty in 2006 (hired between 2003 and 2005, after the implementation of the workshops). This analysis relies on only 2004 workshop attendance because workshop attendance in 2005 or 2006 could not have affected the new hires that came in those years. We have included only UWSMPH new faculty hires in these analyses; applicants who are not hired are not asked about their experience with the hiring process in the UWSMPH.

New TT faculty (hired between 2003 and 2005) in departments with TT faculty who participated in the hiring workshops were more satisfied with the hiring process overall (nonsignificant; 56% were satisfied with the hiring process in 2003 compared with 71% in 2006), whereas new faculty (hired between 2003 and 2005) in those departments without TT faculty participants actually showed significantly *less* satisfaction with the hiring process compared with their peers hired in 2000–2002 (81% were satisfied in 2003 compared with 50% in 2006; $P < .05$). Interactions with the search committee showed a positive increase for women faculty in participating departments, but men in any department showed a decrease in their strong agreement that interactions with the search committee were positive. New faculty in participating departments were slightly more likely to agree strongly that faculty in their departments made an effort to meet them, compared with new faculty in nonparticipating departments. Women in participating departments were much more positive in 2006 than were other groups (both all men, and women in nonparticipating departments). In general, we conclude that participation in the Searching for Excellence & Diversity workshops correlates with a more positive search process experience for women and showed no change for men. However, in departments that did not participate, newly hired men reported significantly *less* overall satisfaction with the process from 2003 to 2006.

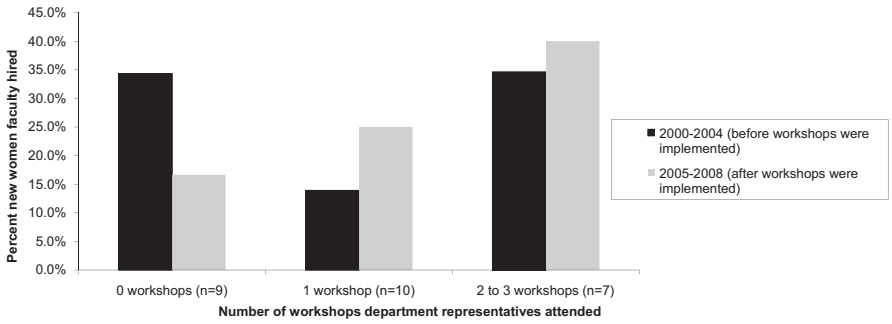

Figure 2 Percentage of new women faculty hired in the University of Wisconsin School of Medicine and Public Health by number of workshops attended, 2000–2008.

Elements of Workshop Success

We attribute the successes of the Searching for Excellence & Diversity workshops to three main features of the workshop curriculum. The first is the use of *peers* to lead and facilitate the workshops.[60,61] When we present these workshops, we rely on faculty leadership both for the short presentations and the facilitation of the small-group discussions that occur in the workshops.[62] The second reason these workshops have been successful in the UWSMPH is the use of *active learning* techniques in their implementation.[39,63] Educational research shows that the most effective way for a person to learn a new concept is to discover it for him- or herself, especially if the new concept (e.g., "We all have biases and assumptions that may affect evaluation of candidates") is in direct conflict with a deeply held belief (e.g., "I am a fair person who evaluates each person on his/her merit alone").[64] We use as little lecture/presentation as possible in our workshops, relying instead on small- and large-group discussion and case studies to make our points. The real learning takes place through the active discussions with other respected faculty colleagues around the table; the presentations serve only to get the conversation started. In this way, we do not present ourselves as the "experts" on hiring; instead, we regard the people seated around the room as the real

Table 1

Satisfaction of New* University of Wisconsin School of Medicine and Public Health Faculty With the Hiring Process: Data From the 2003 and 2006 Study of Faculty Worklife at the University of Wisconsin–Madison

		New* women faculty		New* men faculty		All new* faculty	
Measure	Year	Participating departments‡	Nonparticipating departments‡	Participating departments‡	Nonparticipating departments‡	Participating departments‡	Nonparticipating departments‡
Sample size	2003	5	5	11	16	16	21
	2006	4	6	10	12	14	18
% Strongly agree: I was satisfied with the hiring process overall	2003	60.0	80.0	54.6	**81.3**†	56.3	**81.0**†
	2006	100.0	66.7	60.0	**41.7**†	71.4	**50.0**†
% Strongly agree: Faculty in the department made an effort to meet me	2003	75.0	80.0	63.6	75.0	66.7	76.2
	2006	100.0	60.0	60.0	58.3	71.4	58.8
% Strongly agree: My interactions with the search committee were positive	2003	50.0	100.0	62.5	75.0	60.0	81.0
	2006	100.0	80.0	55.6	75.0	69.2	76.5

* For 2003, "new" faculty are those hired between 2000 and 2002; for 2006, "new" faculty are those hired between 2003 and 2005.

† **Bold** indicates significant *t* test at $P < .05$ level.

‡ Workshops were not yet offered in 2003. "Participating departments" indicates those departments that participated in the workshops offered in 2004. Nonparticipating departments did not attend a workshop in 2004. Workshop attendance in 2005 or 2006 could not have influenced faculty hired between 2003 and 2005.

experts, and we encourage them to all learn from each other.

The third reason that the workshops have been successful is our employment of *peer-reviewed research on unconscious biases and assumptions* and our very specific targeting of the implications of this literature for the search process. Our use of the literature to establish the pervasiveness of biases and assumptions, coupled with the connections we draw to the evaluation of candidates in the academic hiring process, helps to convince many faculty that these issues are relevant for all search committee members. Even those faculty who are aware of the research on biases and assumptions have often not taken the step to apply the research findings directly to their own work in evaluating candidates in the hiring process. Most faculty we have worked with are genuinely grateful for the opportunity to learn about their own unconscious biases so that they might work to lessen their impact, because most faculty want to be fair in their reviews. They find the specific tips and advice we give, based on the research literature, to be very helpful—especially the concise summary we provide to them in the form of our "Reviewing Applicants"[54] brochure.

In Sum

Institutional transformation requires a multilayered approach, and the workshops for hiring committees are only one initiative created by WISELI to increase the gender diversity of faculty in the sciences and engineering at UW-Madison. We recognize the vital importance of retaining newly hired diverse faculty. As part of our efforts to foster retention, WISELI collaborates with UW-Madison's Women Faculty Mentoring Program,[65] offers a small-grants program to promote networking among women faculty and increase the representation of women among invited speakers for department colloquia and seminars,[66] offers a workshop entitled "Enhancing Department Climate" for department chairs,[67] offers workshops to new PIs,[68] and administers an award-winning grant program to help faculty maintain their research programs when adverse life events affect productivity.[69]

The leadership of the UWSMPH has been pleased with the faculty's reception of the Searching for Excellence & Diversity workshops, as well as with the results. The period of funding from the original ADVANCE grant has ended, but the UWSMPH and the Office of the Provost have committed resources to sustain the workshops in order to continue building a more diverse faculty. In 2007 and 2008, we trained even more faculty than we had in the past as new schools and colleges have asked us to present the workshops in their colleges, and as department chairs have requested workshops for all the faculty in their departments. We continue to monitor the diversity of hires across both the UWSMPH and the university as a whole.

Importantly, the results we present are correlations and are not necessarily causal as we did not employ an experimental design. Participation in the Searching for Excellence & Diversity workshops is voluntary. Likely, those faculty who have an interest in issues of diversity and who are already committed to increasing the diversity of academic medicine are more likely to attend the workshops and more eager to implement any process changes suggested in the workshop. However, temporal correlation between

implementation of workshops and hiring outcomes, the presence of a dose–response effect, and the greater satisfaction of new hires in participating departments all provide evidence of a positive impact on the desired outcome—that is, a more diverse faculty in academic medicine.

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Previous presentations: The authors have frequently presented the *content* of their workshops, and they have presented data for the campus as a whole; however, they have not previously presented the data for just the University of Wisconsin School of Medicine and Public Health, as they have done in this article.

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Book Review

Is Biology Still Destiny? Recent Studies of Sex and Gender Differences

by Eve Fine

Paula J. Caplan & Jeremy B. Caplan, ***THINKING CRITICALLY ABOUT RESEARCH ON SEX AND GENDER, 3rd edition***. Boston, MA: Pearson Education/Allyn and Bacon, 2009. 168p. bibl. index. pap., $32.60, ISBN 978-0205579884.

Louann Brizendine, ***THE FEMALE BRAIN***. New York: Morgan Road Books/Doubleday Broadway Pub. Group, 2006. 304p. notes. bibl. index. $24.95, ISBN 978-0767920094; pap., $14.95, ISBN 978-0767920100.

Susan Pinker, ***THE SEXUAL PARADOX: MEN, WOMEN, AND THE REAL GENDER GAP***. New York: Scribner, 2008. 352p. notes. bibl. index. $26.00, ISBN 978-0743284707; pap., $17.00, ISBN 978-0743284714.

Lee Ellis et al., ***SEX DIFFERENCES: SUMMARIZING MORE THAN A CENTURY OF SCIENTIFIC RESEARCH***. New York: Psychology Press, 2008. 992p. $215.00, ISBN 978-0805859591.

Debates over the nature and existence of sex and gender differences are not new. As these four recent publications indicate, they show no signs of abating. Ever since the beginnings of scientific inquiry — defined here as the search for natural explanations of the observed world — people have sought to understand the differences and similarities between men and women. The debates are frequently intense and divisive because they are inextricably interwoven with ideas about women's roles and place in society. As one group of scholars noted,

> Questions about the ways in which males and females differ are controversial because conclusions may have implications for public policies and for the way people think about education, career choices, and "natural" roles for males and females in society.[1]

Consequently, it is important to critically analyze scientific studies of sex differences, as well as the claims made by those who write about them.

Paula J. and Jeremy B. Caplan make critical analysis of scientific studies their subject in *Thinking Critically about Research on Sex and Gender*. They offer readers a set of "tools" for critically evaluating scientific research about sex and gender and warn against two "dangerous assumptions" characteristic of much research on sex differences: (1) that if a "sex difference" is found in some ability or behavior, the difference is characteristic of all men and all women; and (2) that psychological sex differences are biologically based, inevitable, and unchangeable. When differences are reported, the Caplans explain, they are differences in the average scores for men and women, there is often a great deal of overlap between scores for men and women, and individual women and men may differ substantially from the average for their sex. Furthermore, the Caplans note, most human traits, even those with a predominantly biological basis (e.g., height), are the result of complex interactions between biological and environmental factors and are frequently neither inevitable nor unchanging. These cautions encourage readers to look beyond the simple discovery or announcement of a difference between the sexes to consider the magnitude and meaning of that difference. This is sound advice indeed. Unfortunately, the assumptions the Caplans warn about characterize much of the reporting and public discussion about the nature and implications of sex differences. These assumptions permeate two of the books considered in this review: Louann Brizendine's *The Female Brain* and Susan Pinker's *The Sexual Paradox*.

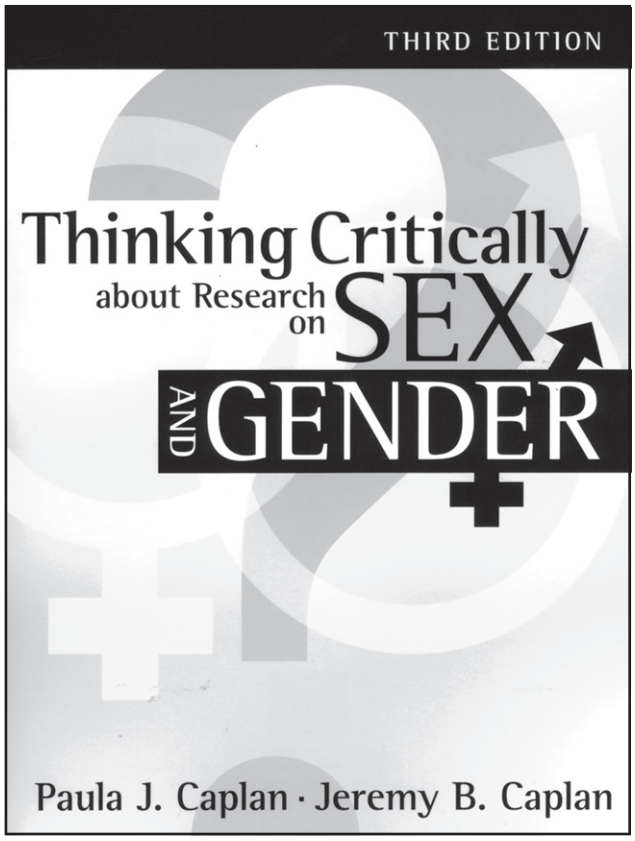
Brizendine and Pinker both argue polemically against some amorphous group of people who supposedly deny the existence of sex differences between men and women. Brizendine defines her antagonists as those who advocate "political correctness" and deny the existence of sex differences in the face of "scientific truths" (pp.

6, 162), while Pinker accuses second-wave feminists of creating the expectation "that there should be no real differences between the sexes" (pp. 1, 9).

Both Brizendine and Pinker misrepresent the nature of ongoing debates about sex differences. There is no group that denies the existence of sex and gender differences. Rather, the debates are about the magnitude, significance, and origins of these differences. Are the differences between men and women large or small; do they determine educational and career paths; and are they the result of biological factors, socialization, or some combination of the two? Some people concentrate on the differences between the sexes (what makes us male and female) and some on the similarities (what makes us human). Brizendine and Pinker focus firmly on the differences and argue that those differences are biologically determined.

The fourth book reviewed here, *Sex Differences: Summarizing More Than a Century of Scientific Research*, by Lee Ellis and others, is not a summary at all, but rather a bibliographic listing of a large body of work. It makes no claims about the origins of reported sex differences and, as I will illustrate, is of questionable value.

Let us turn first to the Caplans' book, *Thinking Critically About Research on Sex and Gender*, a short, concise, and simply written text addressed to students at all educational levels and in any educational field (p. xvi). This text will most likely be used in undergraduate courses, but high-school students are capable of understanding and becoming engaged with the material as well. The instructional tone may be less appealing to graduate students, professionals, journalists, and the general public, which is unfortunate since all could benefit from applying the Caplans' critical-thinking approach to discussions about the nature and significance of sex and gender difference.



In addition to cautioning the readers about the "two dangerous assumptions" present in many interpretations of research on sex differences, the Caplans describe common scientific methodologies and explain the limitations of many research studies. They instruct readers to pay attention to scientists' motivations for conducting their studies and to reflect on some of the following questions: Are the attributes or abilities being tested adequately defined? Do the tests actually measure the attribute or ability under study? Is the population sample large enough or representative enough to support claims and findings that can be generalized to larger populations? Do the findings of the study support the conclusions reached, and are there other factors that might explain the findings?

Each chapter focuses on applying these questions to scientific investigations of sex differences in a specific ability, behavior, or characteristic. The chapter on verbal ability is illustrative of the Caplans' approach. It points out that reports on sex differences in verbal ability rarely define the term, which could refer to any number of measures, including vocabulary size, reading speed, reading comprehension, ability to memorize random lists of words, age when speaking first word, length of sentences produced, and more (pp. 54–55). The Caplans note that males do better on some of the tests while females do better on others, and that "when sex differences have appeared they have tended to be extremely small" (pp. 55–56). In other words, the Caplans find no support for the oft-made claim (see both Brizendine and Pinker, for examples) that women have better verbal abilities than men. Indeed, a review of some recent studies by respected researchers in the field of sex differences research supports the Caplans' contention that findings of sex differences in verbal abilities depend heavily on the test used and on the specific measure tested.[2]

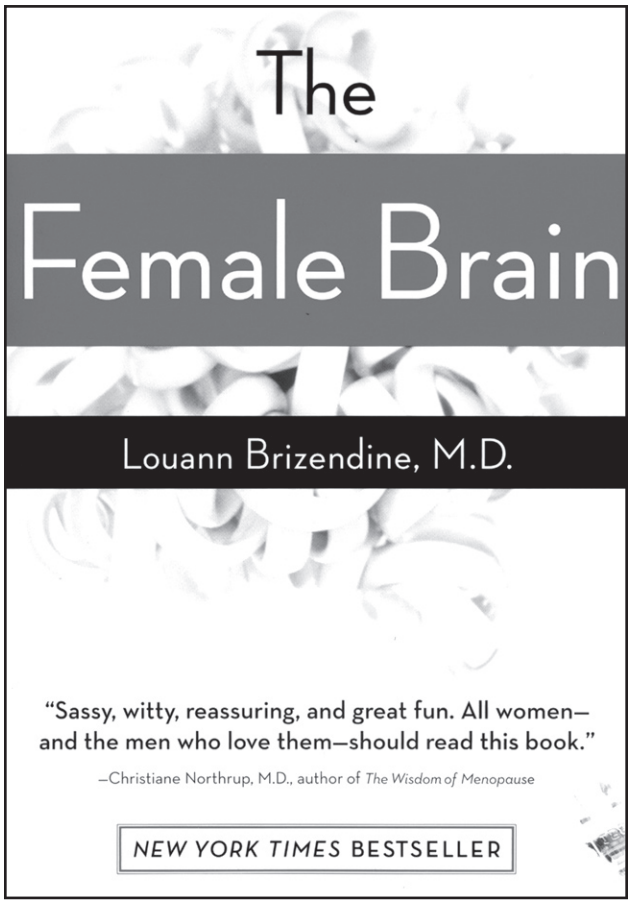
The Caplans' consistent application of the same set of questions to a variety of research fields in chapter after chapter does become repetitive and somewhat annoying, but it also rein-

forces the critical thinking methodology they are teaching and highlights the limitations common to many studies of sex differences. In general, the text admirably meets its goals of providing "readers with critical tools they can apply to come to realistic, constructive conclusions" about research on sex differences (back cover). The book would certainly be a valuable addition to courses dealing with such subjects as women's studies, gender studies, science and society, contemporary social issues, critical thinking, and more.

Louann Brizendine's *The Female Brain* is less about brains than about hormones. Brizendine argues that "the female brain is so deeply affected by hormones that their influence can be said to create a woman's reality" (pp. 3-4). Organized around the female life cycle, the book summarizes research from a variety of fields to illustrate how hormones and their effect on the brain influence a woman's abilities, personalities, choices, and decisions at every stage of her life. Each chapter deals with a different stage of life. Brizendine relies not only on research findings from studies of hormones, brain imaging, and human and animal behavior, but also on case histories from her clinical practice as a psychiatrist and as the founder and director of the University of California–San Francisco's Women's Mood and Hormone Clinic.

One major flaw of this work is that it seems to discourage readers from checking references. There is a large bibliography, but no numbered footnotes or endnotes. Instead, in a backwards approach, Brizendine provides a list of citations for specific phrases at the end of the book. Though the phrases and citations are organized by chapter and page, readers who wish to check references must go from the citations back to the text and hunt for a particular phrase to discover the source of the claim. Furthermore, not all claims are supported by citations to sources. For example, no source is cited for the claim that "girls speak two to three times more words per day than boys" (p. 36) and not even one of the thirteen sources cited for the claim that high-school girls do more "talking, flirting, and socializing" (p. 36) is a study of talking, flirting, or socializing. The one citation that seems the most closely related is Matthews (2005) on "social and sexual motivation in the mouse" (p. 247).

Despite arguing that biology plays a defining role in women's lives, Brizendine apparently does not believe that biology is destiny. In a rather convoluted argument, she suggests that if "in the name of free will — and political correctness — we try to deny the influence of biology on the brain, we begin fighting our own nature," but that if "we acknowledge that our biology is influenced by other factors, including our sex hormones and their flux, we can prevent it [our biology] from creating a fixed reality by which we are ruled" (p. 6). Essentially, Brizendine is saying that biology *is* destiny, but that by recognizing the effects of sex hormones we can subvert this destiny. At first this circular argument makes little sense, because sex hormones are clearly part of our biology. As Brizendine's book unfolds, it becomes clear that she believes we can "[change] the effects of sex hormones" (p. 6) by prescribing hormone treatment. She advocates treating the mood shifts associated with hormonal fluctuations in adolescent girls by prescribing continuous birth control pills and occasionally antidepressants (pp. 48–49), and controlling "the storms and hormonal adjustments of menopause" with hormone replacement therapy (p. 154). Brizendine does recommend methods other than medication for controlling the power of hormones. For example, she suggests that learning to understand hormonal effects and to question whether your reactions and perceptions are "real as opposed to hormone-induced" can improve relationships and coping skills (p. 147). Still, she presents a picture of women utterly controlled by their hormones. Her perspective likely results from her clinical practice — perhaps

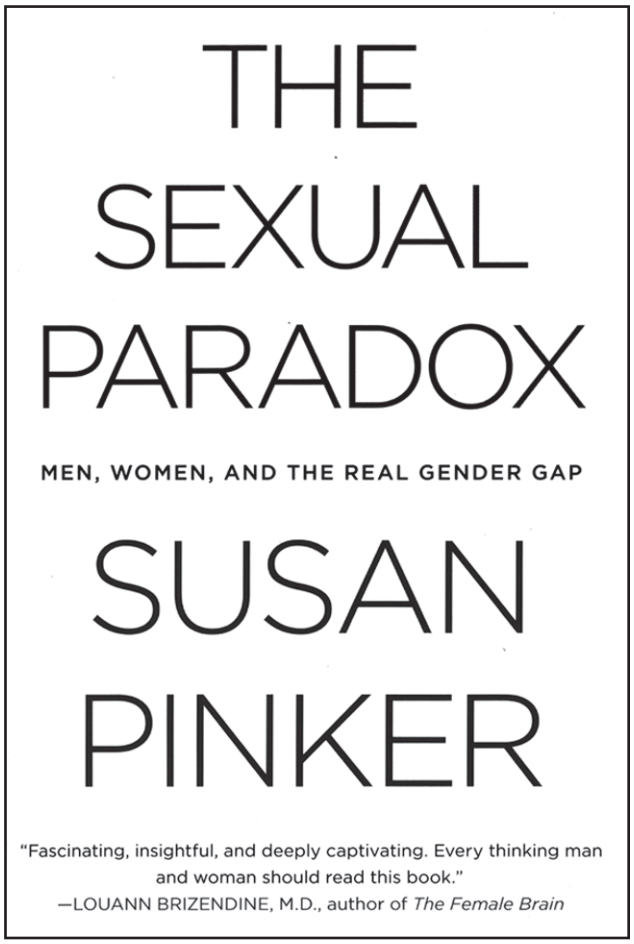


she encounters more women with intense reactions to hormonal changes because they are the ones most likely to approach her "Women's Mood and Hormonal Clinic" for help. If that is the case, however, she makes a serious error in extrapolating from her patients to women in general.

This extrapolation, as well as the serious implications of Brizendine's contentions about the control biology exerts on women's lives, can be seen in her discussion of women in the workplace. She claims that "the more you do something, the more cells the brain assigns to that task" (p. 97) and argues that the brains cells for women who strive to maintain careers while raising families must be divided between caring for children and concentrating on work. As a result, she warns, women experience "overloaded brain circuits" — a "situation [that] puts both kids and mothers in deep crisis everyday" (pp. 97, 112, 160).[3] Brizendine does not advocate that women retreat from the workplace, but rather that they plan ahead to ensure predictable work schedules, reliable childcare, and a community of support. She seems unaware that employers who accept her assertions may, as a result, be unwilling to hire women, fearing that they will become "fuzzy minded" after having children. Nor does she take into account the possibility that women's struggles are a result not of their brains, but of workplaces designed on the basis of gendered social roles in which men are expected to be the sole breadwinners and women to be the homemakers.[4] She also does not consider the obstacles many women may face in securing predictable or flexible work schedules and affordable, quality childcare. Indeed, her examples and solutions seem applicable only to the privileged women who may form the bulk of her patient population.

Another serious error Brizendine makes is to overemphasize the degree to which brain structure determines sex differences in abilities and behaviors. As most neurobiologists emphasize, the brain is an extremely flexible organ; it certainly exerts a powerful influence on human behavior, but it also changes in response to experience and learning. As the eminent neuroscientist Richard Davidson points out, "the fact of biological differences among individuals says nothing about the origins of those differences." He stresses the importance of understanding that experiences can determine the structure and function of brain circuits and that "social influences on brain structure, activation patterns, neurogenesis, and even gene expression have all been demonstrated."[5]

The Female Brain is replete with the assumptions the Caplans warn about — it depicts the author as an objective scientist presenting unbiased truths; it applies questionable findings of sex differences broadly to all women; and it claims that psychological sex differences are biologically based. I do not recommend this text for courses in which the goal is for students to understand women and their roles in society.



Susan Pinker, in *The Sexual Paradox: Men, Women, and the Real Gender Gap,* explores sex differences by examining two "extreme" groups: "fragile boys" with dyslexia, Asperger's syndrome, and attention deficit disorders who struggled in school but later succeeded in life; and "gifted, highly disciplined girls" who later abandoned highly successful careers (p. 7). Pinker never really explains why she decided to compare these two particular groups, nor does she question whether the comparisons between them reveal meaningful sex differences — although she clearly believes that they do and that these differences are biologically based (p. 13).

Pinker's decision to examine "fragile boys" grew out of her clinical practice as a child psychologist. Most of her patients were boys with learning disabilities, attention problems, and aggressive or antisocial behaviors. She became interested in their successes when she learned of their achievements through media coverage: one became a famous designer, one an investment banker, one a pioneering electrical engineer, and one an up-and-coming chef (p. 6). The parts of the book that deal with these boys are interesting and engaging, and Pinker provides a valuable lesson for all individuals by attributing the boys' successes to their ability to understand their individual strengths and weaknesses and find or invent careers that built on their strengths. It would have been very interesting, and perhaps even more instructive, to use a comparison of "fragile boys" who succeeded with those who didn't succeed to learn more about pathways to achievement. Instead, Pinker makes the questionable assumption that these "fragile boys" — who struggle to read but excel at mathematics, who cannot relate to or empathize with other people but can focus well on technological details — are somehow emblematic of all men. By doing this, she exaggerates the differences between men and women and fails to recognize that many men read well, aren't good at math, are empathic, and relate well to other people.

Pinker's assumption is based on an unusual interpretation of intelligence and ability test results. She acknowledges that these tests show that "the two sexes are well-matched in most areas, including intelligence" and admits that when "comparing men and women in the middle ranges one finds fewer sex differences" (p. 13). Instead of focusing on this broad similarity, Pinker focuses on the differences. She concentrates on the finding that men's scores are more variable than women's and that more men than women are found at the tails ends of normal bell curve distributions. There are, Pinker states, "more very stupid men and more very smart ones" (p. 13). This discussion of the results of intelligence tests is fairly standard. Pinker departs from the standard interpretation of bell curve distributions, however, when she claims that the more "unusual boys and men" who "perform poorly in school [and have] learning problems, attention deficits, social disorders, and physical aggression" are representative of "the more average, run-of the mill male" (p. 33). She argues that "the extremes within each sex illuminate the characteristics of those in the middle" (p. 34). Statisticians usually say precisely the reverse; they interpret bell curve distributions as showing that those whose scores fall into the average range are more similar to one another than to those who score at either of the extremes.

Pinker selectively relies on studies of sex difference that conclude that men have better spatial skills but worse verbal skills than women and are more interested in things than in people — traits she argues average men share, although in milder form, with men who have Asperger's syndrome. She cites only a few studies, though, and ignores her own earlier statement that there is a great deal of overlap between men and women. She also ignores the larger body of work and the meta-analyses of such studies that reveal, as the Caplans argued, that most gender differences — when they exist — are small in magnitude.

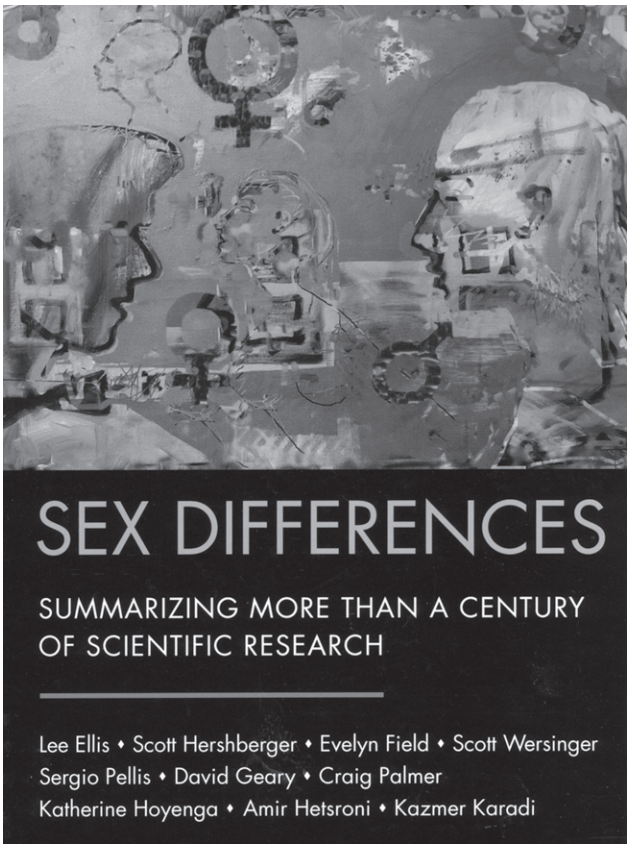
Pinker's chapters on talented women who left successful careers alternate with those on dyslexic boys and on males with attention deficit disorders. The transitions between topics sometimes seem choppy, perhaps because the comparison she is trying to make between "fragile boys" and successful women is somewhat forced. Just as we may have benefited from a comparison between "fragile boys" who succeeded and those who didn't, it would be far more interesting to learn about differences between talented women who left successful careers and those who did not.

Nevertheless, Pinker does share some valuable insights about the struggles women in high-powered, demanding careers face. For example, she criticizes the "male model" upon which the workplace is based. This criticism is not new. Indeed, it is the subject of Joan Williams's *Unbending Gender: Why Family and Work Conflict and What to Do About It* — a work that Pinker does not cite.[6] Pinker, like Williams, argues that this male model, with its expectation that workers devote long hours to their jobs, travel frequently, and be available at all times, places unsustainable demands on women who are also trying to raise families (p. 118). While most feminists, Williams included, see the origins of the "male model" in the gender roles society expects men and women to play (men are workers, women are homemakers), Pinker attributes its pervasiveness to second-wave feminism of the 1960s and 1970s, which resulted in the passage of new laws (the Equal Pay Act, Title VII, the Civil Rights Act, and Title IX) that "whitewashed any fundamental differences between the sexes" (p. 9). Consequently, unlike Williams and other feminists who regard the challenges women face in the workplace as the result of systemic gender biases based on assumptions that the "ideal worker" has a spouse at home taking care of the family, Pinker argues that the workplace's failure to recognize and adjust for biological differences between men and women leads women to "opt out" of high-powered careers.

Women's choices to "opt out," she contends, are based on their biological nature, which compels them to prefer staying home to nurture their children or to switch to careers more suited to their nature — careers that involving caring for other human beings. Pinker recommends a host of policies workplaces can implement to adjust to the biological needs of women: "multiple tracks that don't stigmatize or penalize women for taking time out for children . . . maternity leaves, more elastic promotions schedules . . . part-time work," and more (p. 259).

There is nothing wrong with these recommendations — except for Pinker's insistence that they apply only to women workers. Defining women's challenges in the workplace as a biological issue, along with believing that biological differences determine women's and men's interests and abilities, leads Pinker to propose solutions that depend on women alone to nurture children. She fails to recognize that men too have a need and a desire to spend time with their loved ones and nurture their children. She also fails to recognize that creating such policies only for women risks relegating women to second-class status — the "mommy track" — and may exacerbate inequities in pay and status. Pinker also fails to recognize that many women do not have the luxury to "opt out" of work, whether they are in high-powered careers or not, because they do not have husbands earning high salaries. Such women frequently must work in order to take care of their families.

Pinker recognizes and condemns the fact that "people-oriented jobs" and work traditionally performed by women command less pay and prestige than "male typical careers" (p. 262). Curiously, though, she does not blame this discrepancy on gender bias in a society that places greater value on work performed by men. Instead, she argues that "efforts to attract women into fields that appeal to men (science and engineering, for example) are responsible for "devaluing women's preferences" (p. 262). She even devotes an entire chapter to successful women who rejected careers in the physical sciences, technology, or engineering. These fields, she argues, are attractive to men, who excel at math and are more interested in things than in people. She acknowledges that women may have the ability to excel in these technical fields, but claims that their biologically based preference for work in which they can interact with and be of service to people makes them uninterested in pursuing such careers. This, she argues, explains why more women choose to study ecology, biology, or medicine than engineering or computer science (pp. 62–91). She ignores not only a wealth of studies on the reasons for discrepancies in the number of women entering the physical sciences, but also the fact that increasing numbers of women do enter and excel in the physical and technical sciences, and the reality that success and persistence in these fields requires competence in a wide variety of abilities, not just on mathematical ability and an interest in "things."



Pinker recognizes as problematic many of the same inequities feminists seek to reduce. Curiously, though, her unique perspective on the origins of these inequities exhibits a decided antipathy to the feminist movement. I do not recommend *The Sexual Paradox* as a resource for helping students understand women, women's roles in societies, and the constraints women face in their efforts to attain equity. Because the book has received considerable press attention, however, individuals may consider reading it to learn more about its claims and limitations.

Sex Differences: Summarizing More Than a Century of Scientific Research, by Lee Ellis and others, claims to provide a comprehensive summary of "all the scientific evidence surrounding gender differences" in part to permit debates about the origin and nature of sex difference to be "more objectively waged" (p. xii). It also aims to be easily updated so that additional volumes can be printed as new studies

are published. Unfortunately, although this text was certainly a mammoth undertaking and undoubtedly required enormous amounts of effort, it fails to meet its goals. It is neither comprehensive nor a summary, but rather a massive bibliography that was out of date the day it was published. It claims to summarize more than 18,000 studies, but a quick search of the popular "EBSCO Academic Search" database for sex or gender differences yields almost 27,000 citations, indicating that there are many more than 18,000 studies. It claims to summarize scientific research, yet all it does is provide approximately 950 pages of table after table listing scientific studies for particular sex differences. The "summaries" precede the tables and provide a mere sentence or two describing the general conclusions of the collected studies. Within the tables, the authors note whether or not each study found a sex difference and whether the difference was present more in males or more in females. No information is given about research methodology, who or what the research subjects were (animal studies are included), or sample size. Analysis is limited to simply tallying the studies to determine how many showed a sex difference that was present more in males, more in females, or not significant. No effort was made to weight each study according to its sample size.

The authors selected this form of "analysis" primarily because it was easier than conducting a meta-analysis (p. xv). The studies are categorized into twelve chapters and the range of studies included is too immense to describe. A "grand summary" at the end lists "the most certain universal sex differences," but no similar list of the most universal similarities is provided. It is difficult to understand what use this compilation will actually serve — especially when Internet databases are so readily accessible. Perhaps it will serve merely as a witness to our culture's obsession with sex-difference research!

The four books reviewed here illustrate that despite the wealth of sex-difference research being conducted, hot debates persist about the size and significance of sex differences and the origins of these differences. The debates show no signs of being resolved anytime soon, largely because they are so intimately connected with our social and political views about men and women and the roles they play in society. The Caplans' book, *Thinking Critically About Research on Sex and Gender,* provides a road map for those seeking to apply critical thinking to the scientific studies. Pinker's *The Sexual Paradox* and Brizendine's *The Female* Brain, however, along with the popular acclaim these books have received, demonstrate how rarely critical analysis is applied and how readily claims about biologically determined differences are lauded.

Notes

1. Diana F. Halpern et al., "The Science of Sex Differences in Science and Mathematics," *Psychological Science in the Public Interest*, v.8, no.2 (August 2007), p. 2.

2. Halpern et al., pp. 1-51. See also Janet Shibley Hyde, "The Gender Similarities Hypothesis," *American Psychologist,* v. 60 (2005), pp. 581–592. Halpern's review reports only small differences in writing, language use, and reading among male and female elementary school students in the U.S., but notes that by the eleventh grade, girls outperform boys on measures of writing achievement. It notes that tests with a focus on writing skills and on topics females are familiar with will favor females, while other tests may not show that females are more verbally skilled than males.

3. Brizendine's arguments about women in the workplace are strikingly similar to the arguments Edward H. Clarke made against coeducation for women in the 1870s. See Edward H. Clarke, *Sex in Education: Or A Fair Chance for Girls* (Boston: J.R. Osgood, 1873).

4. For an extensive analyses of the gendered nature of the workplace, see Joan Williams, *Unbending Gender: Why Family and Work Conflict and What to Do About It* (New York: Oxford University Press, 2000).

5. Richard. J. Davidson, "Toward a Biology of Personality and Emotion," *Annals of the New York Academy of Sciences*, v. 935 (2001), p. 202.

6. See note 4 above.

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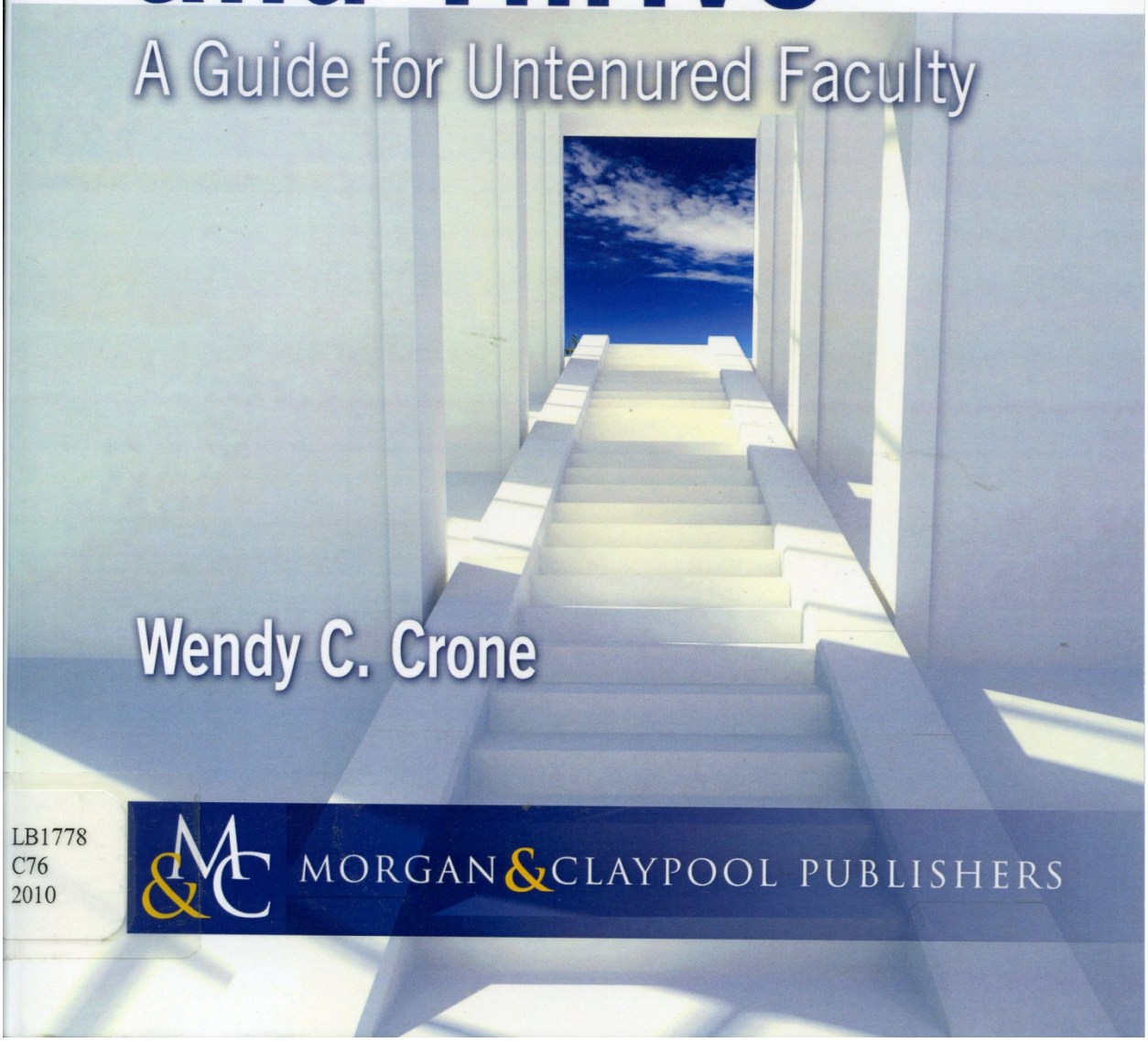
WISELI Publications 2010:

Crone, Wendy. 2010. *Survive and Thrive: A Guide for Untenured Faculty*. San Rafael, CA: Morgan & Claypool Publishers.

Survive and Thrive

A Guide for Untenured Faculty



Wendy C. Crone

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Survive and Thrive: A Guide for Untenured Faculty

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ABSTRACT

The experience of an untenured faculty member is highly dependent on the quality of the mentoring they receive. This mentoring may come from a number of different sources, and the concept of developing a constellation of mentors is highly recommended, but a mentoring relationship that is guided by the mentee's needs will be the most productive. Often, however, the mentee does not know their own needs, what questions to ask, and what topics they should discuss with a mentor. This book provides a guide to the mentoring process for untenured faculty. Perspectives are provided and questions posed on topics ranging from establishing scholarly expertise and developing professional networks to personal health and balancing responsibilities. The questions posed are not intended for the mentee to answer in isolation, rather a junior faculty member should approach these questions throughout their untenured years with the help of their mentors. *Survive and Thrive: A Guide for Untenured Faculty* will help to facilitate the mentoring process and lead junior faculty to a path where they can move beyond just surviving and truly thrive in their position.

KEYWORDS

mentoring, faculty, tenure, career planning

Contents

Afterword

I was inspired to write this book by a wonderful self-assessment guide called "Thriving Through the Experience: An Assessment Guide For Graduate And Professional Students," which I co-authored with a group of women at the University of Minnesota. It was a project that I took on during my graduate studies, and it helped me to develop a broader scope for my own professional development at the time. The authors of that original manuscript, Joy Frestedt, Laboratory Medicine and Pathology, Wendy Crone, Aerospace Engineering and Mechanics, Katherine James, Veterinary Medicine, and Jessica Morgan, Anthropology, were all members of the Coalition of Women Graduate Students on the Twin Cities Campus of the University of Minnesota.

When I started as an Assistant Professor in the Department of Engineering Physics at the University of Wisconsin–Madison, I decided that I needed to build a new guide for myself that addressed issues faced by new faculty members. The development of this book, "Survive and Thrive: A Guide for Untenured Faculty" began in 1998. The book evolved over the years and was informed by the knowledge I have gained and my own personal experiences. Happily, I have received wonderful mentoring and advice from interactions with numerous individuals and through various workshops for faculty. I have also benefited from wonderful colleagues and generous peer mentors. Several people have given me feedback on the guide at various stages of its development, and I wholeheartedly thank them all. Special thanks go to Lindsey Stoddard Cameron and Prof. Laura McClure at the University of Wisconsin–Madison, particularly for their assistance in helping me to broaden the guide to address issues faced by new faculty across the disciplines.

Later in its development, the project was supported by the University of Wisconsin's Women Faculty Mentoring Program and the Women in Science and Engineering Leadership Institute (WISELI). This project was partially funded by a grant from the National Science Foundation (#0123666). Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author and do not necessarily reflect the views of the National Science Foundation.

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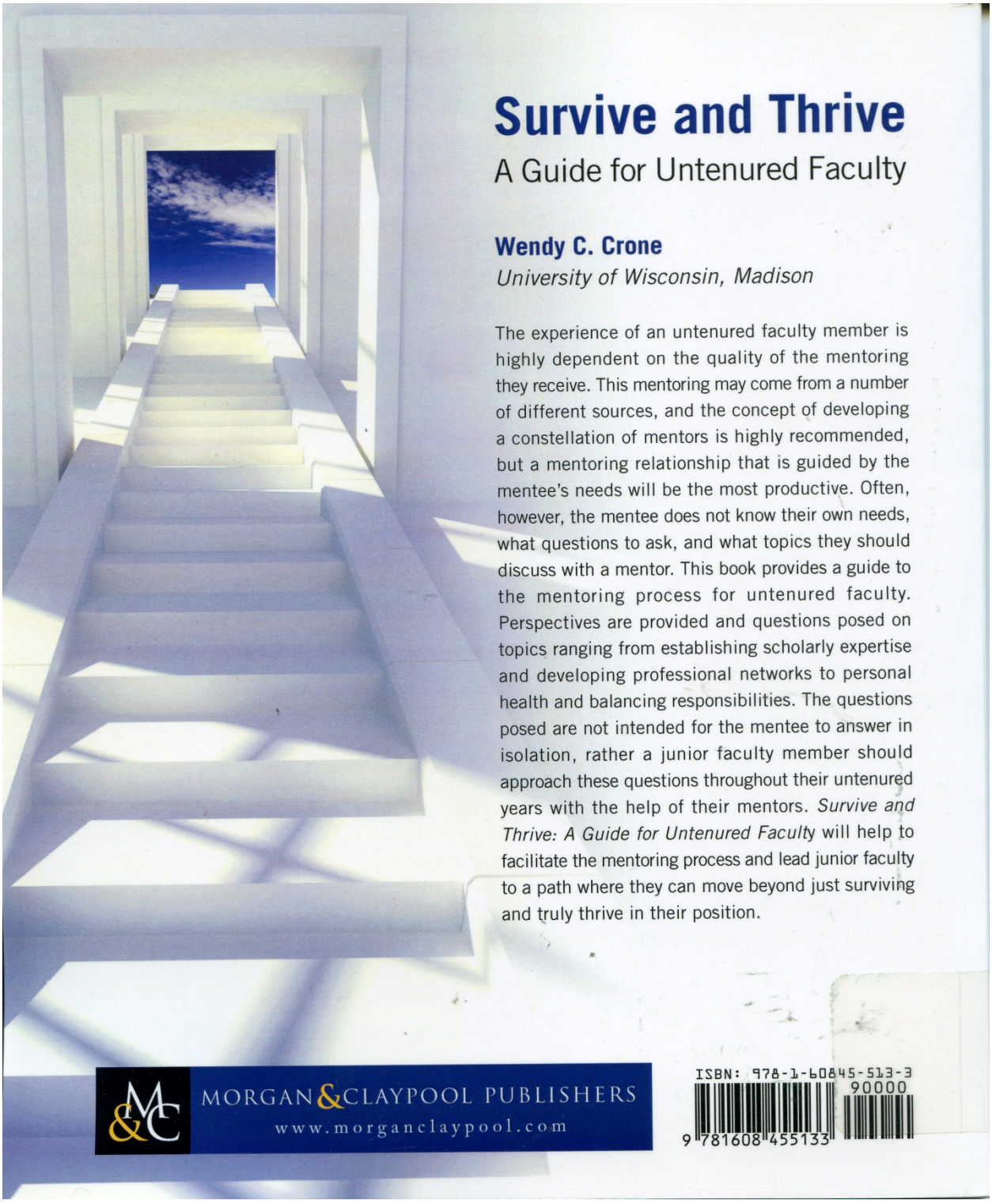

Survive and Thrive

A Guide for Untenured Faculty

Wendy C. Crone
University of Wisconsin, Madison

The experience of an untenured faculty member is highly dependent on the quality of the mentoring they receive. This mentoring may come from a number of different sources, and the concept of developing a constellation of mentors is highly recommended, but a mentoring relationship that is guided by the mentee's needs will be the most productive. Often, however, the mentee does not know their own needs, what questions to ask, and what topics they should discuss with a mentor. This book provides a guide to the mentoring process for untenured faculty. Perspectives are provided and questions posed on topics ranging from establishing scholarly expertise and developing professional networks to personal health and balancing responsibilities. The questions posed are not intended for the mentee to answer in isolation, rather a junior faculty member should approach these questions throughout their untenured years with the help of their mentors. *Survive and Thrive: A Guide for Untenured Faculty* will help to facilitate the mentoring process and lead junior faculty to a path where they can move beyond just surviving and truly thrive in their position.

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10

CECILIA E. FORD

Questioning in Meetings

Participation and Positioning

1. Context and Aims

My broad interest is in documenting participation practices of women in workplace positions where women are generally underrepresented (i.e., traditionally male-dominated professions and institutions).[1] Overall, men outrank women in the institutional hierarchies of the workplaces I am studying, and this is reflected to various degrees in the relative ranks of women and men in each meeting in my database. To shed light on how women get and use the floor in these workplace meetings, I focus on practices for initiating and building contributions to interactional events. For this volume, I look at a subset of contributions: those initiated by the action of questioning. I draw from a database of videotaped workplace meetings, a set of institutional events marked by official openings and closings and organized by reference to agreed-upon agendas and persons in special leadership roles. Through analysis of ongoing sequences of action, including attention to both verbal and nonverbal forms of participation, I document an interactional pattern in which questioning serves as a vehicle for shifting participation and for positioning a meeting participant as knowledgeable and relatively, perhaps even fleetingly, powerful at a particular moment in a meeting. *Power*, as I use the term here, is enacted when a participant claims rights to speak and when the theme of that person's contribution is continued in subsequent talk by the same person and/or by others. This view of interactional power is comparable to that taken by Nancy Ainsworth-Vaughn (1998, 43): "[W]e can discuss power in terms of the ways it is constructed in interaction. Power is constructed partially through actions that control the emerging discourse: participants' successful claims to speaker rights."

I also borrow the language of "positioning" from discursive psychology (Davies and Harré 1990; Harré and Moghaddam 2003), especially as it applies to the enact-

ment roles and relationships in local moments of interaction (see also Goffman 1981; M. H. Goodwin 1990 on "footing" and "participation framework").[2] In my analyses, I draw from conversation analysis and the related but more linguistically oriented field of interactional linguistics. Because the present study is part of a larger project documenting women's participation in workplace meetings, I focus on turn initiation by women, that is, ways that women secure the floor to make contributions to meetings. The patterns I document here may, of course, also be used by men.

My investigation began with attention to cases where women initiated turns in mixed-sex meetings. By initiating longer contributions or contributions that are developed in subsequent interaction, speakers position themselves as consequential and in that sense powerful in a group. In the course of collecting instances of women getting the floor and further access to participation, I found a number of turn beginnings that work to project further multiunit talk by the same speaker. The work of turn initiations and the contingencies involved in negotiating extended turns has been a focus of much conversation analytic and interactional linguistic research. Participants take special measures to project longer turns, turns that go beyond single prosodic and grammatical boundaries (Jefferson 1978a; Houtkoop and Mazeland 1985; Schegloff 1996; Selting 2000; Ford 2004, among others). In addition to some of the more familiar frames for projecting extended turns such as "Let me comment on that," I have found that questioning actions regularly lead to further talk by the questioner. Specifically, questioning actions by *nonchairs* or *nonprimary speakers* (that is, questions by persons with no current special hold on the floor) set in motion courses of action, or sequences, in which the floor is regularly offered back to the questioner. In the cases I focus on here, questioning manifests a particular form of power; it shifts the participation dynamics at given moments of interaction, either by projecting a further turn by the questioner or by opening up the relevance of actions by others in line with the theme introduced by the questioning action.

Questioning may not seem an ideal action for initiating further participation and thereby claiming power. Indeed, the interactional sequence that a questioning action (not necessarily an interrogative form; see Freed 1994) initiates most immediately relinquishes the floor to the addressee. On the face of it, immediately ceding the floor works counter to claiming the floor to speak further. Furthermore, the action of questioning, as understood in this study, communicates that a speaker lacks knowledge or certainty, hardly a powerful action, at least in the abstract. However, in the current data, not only do questioning turns regularly lead to further talk by questioners but, within the questioning turns themselves and within subsequent talk, questioners position themselves as consequential in the meeting events, a positioning that is co-constructed (Ochs and Jacoby 1995) by others in the meeting as they respond to the talk (both topic and sequence) initiated by the questioning action.

In example 1, Jill, a member of a medical group, initiates a sequence by questioning the efficacy of a specific drug. In both her questioning turn and her follow-up, she displays technical understanding of the topic, the use of the drug "alendronate" for osteoporosis:

(1) Ned = primary speaker[3]

⇒JILL: Ned, uhm what- what's the- percent of alendronate users, (0.4) have you seen that ar- you would call sort of failures.
(0.4)
JILL: Bone marrow density failu°res.°
(3.1)
[response by primary speaker, Ned, deleted in the interest of space]
⇒JILL: And that's what it sounds like. I mean if y- if you: .hh If you >can< loo:k, I mean if you know you have good adherence,(.) it sounds like the likelihood of failure is very, (.) very low.

Jill displays expertise (technical terms, knowledge of relevant adherence problems in medication prescription) not only in her questioning but also in her elaboration (at the second arrow), when she skillfully claims that the information in Ned's response is something she had already inferred (for my analysis, please see section 4, case 2, below).

The focus of this chapter, then, is on questioning as an action that gains the questioner entry into participation and/or opens participation space for others, as well as the ways that questioning actions and what follows them can serve to position a woman as consequential in a particular span of interaction. In section 2 I briefly review the analytic frameworks I draw from for this study. In section 3 I outline a basic sequence type that forms the contingent template through which questioning actions gain a questioner access to further participation. I then offer closer analyses of the interactional emergence of questioning in two cases from a medical meeting, where I attend to the contexts in which questioning actions are introduced (section 4). I consider both nonverbal and verbal actions, and I draw attention to the fact that questioning can initiate further participation, by the questioner and others, and the ways such sequences serve to display and enact positions of power or consequentiality.[4]

2. Approach and Data

For this study I draw from the interrelated frameworks of conversation analysis (CA) (see Heritage 1984b) and interactional linguistics (IL) (see Couper-Kuhlen and Selting 2001).[5] To my mind, these approaches cannot be neatly separated, and if one looks from one study to the next, it is far from obvious which line of research any particular study represents. In treating naturally occurring talk as primary data and in looking for evidence that the participants themselves orient to the interactional patterns that the analyst observes, CA and IL are in principle identical, IL being founded on CA. However, IL can be distinguished from CA in that research associated with IL is heavily informed (some would say biased) by linguistic research and terminologies. Researchers in IL are committed to critiquing and expanding the notion of language within linguistics by treating interactional functions and patterns as foundational. Thus, IL scholars attend to relationships between social interaction and recurrent linguistic forms. Over the past decade, IL has not only provided further technical grounding for fundamental phenomena originally outlined in CA studies but IL has also contributed substantially to a developing line of findings regarding the interrelationships between language typology and the structuring of social interaction across languages and communities (e.g., Ford and Mori 1994; Fox, Hayashi, and Jasperson 1996; Tanaka 1999; Uhmann 2001).

In contrast, most researchers affiliated with CA are primarily concerned with critiquing and expanding theories and methods for studying social action (or "structures of social action"; Heritage and Atkinson 1984). Though CA research draws upon grammatical terminology, analysts tend to leave traditional notions of "grammar" unexamined.[6] These differences in focus and intellectual grounding notwithstanding, both CA and IL scholars share an interest in the actions of turns; they share the aim of discovering oriented to and recurrent patterns of turn taking and action sequencing as basic practices in social interaction. The current investigation is intended as a contribution to both CA and IL enterprises.

Like other researchers in IL and CA, I take seriously the fact that all utterances, be they sentences, phrases, or whatever grammatical form, arise within dynamic, contingent, and collaborative courses of action among participants in interaction. A course of action includes not merely a sequence of separate turns delivered by different speakers but also actions that are produced simultaneously, including nonverbal actions by both current speakers and by others. I strive to ground my analysis in close examination of local coordination of action, the collaborative work of parties to a developing span of talk.

As noted earlier, my focus is on women's contributions in workplace meetings, and in that respect my enterprise also fits appropriately into an "applied conversation analysis," as Lerner classifies one line of his research on turn design and "opportunities for participation" in instructional settings (1995, 113). I document how women get and use the floor in settings where we know from experimental studies and from aggregate social indicators that women are poorly represented, undervalued, and undercompensated (Ridgeway and Correll 2004; Valian 1998). My data come from fields in which women are slowly moving into higher ranks (e.g., medicine, physics, engineering, and mainstream organized religion). The database consists of twenty-three hours of videotaped meetings in a variety of workplace settings: meetings of a church staff, a medical group, two research laboratories, two university committees, a nonprofit board, and a public utility workgroup. The events involve both women and men, and both women and men take leadership roles in the meetings. Names and other identifying information have been altered in the transcripts.

In studying sequences initiated with questioning actions as ways into participation in workplace meetings, my method has been to begin broadly with cases of turn initiation done through questioning. In line with CA and IL methodologies but in contrast to some other studies of question form and function (notably Freed 1994[7]), I treat questions as turns that (a) point to missing information or a lack of certainty regarding stated understanding, and (b) are delivered in such a way as to create a slot for the recipient to produce a responsive turn.

Function rather than form guided me as I collected cases. Questioning actions within the collection take a variety of linguistic forms: interrogative syntax (yes/no and *wh*-), rising intonation on phrases or on declarative clauses, B-event statements (a particular functional subset of declarative clauses; Labov and Fanshel 1977; Heritage and Roth 1995), and claims of missing information delivered with declarative syntax (i.e., declaratively formatted turns reporting that the speaker is missing some information that another participant is invited to supply).

For example, I consider Bonnie's turn in example 2 to be doing questioning because (a) she reports that she is missing information and (b) she opens a slot in the

interaction for Ned, her addressee, to provide a response. Ned responds to multiple interactional functions of Bonnie's turn, including its questioning action:

(2) Ned has been co-constructed as the expert. "Beaudry" is a pseudonym for a drug company.

BONNIE: Ned, one of the things that's always bothered me, and I've never gotten a good answer from Beaudry, either, is that (.) unless you giv:e (.) parathyroid hormone intermittently, it's getting subcue **((=subcutaneously))**, so that you get, it's that ***((gestures))*** it's basically emulsion, you don't have that good anabolic effect, a:nd, you know, that's what might scare us more about the osteosarcoma, I guess that's what the rats have too, but when people have primary (.) hyperparathyroidism, it doesn't just, ***((gestures up and down, indicating fluctuation in hormone level))***, you know, so it's it's rea:lly a kind of a different drug in a way, and that that concerns me.

NED: Yeah, I mean, I think, I- I- you're exactly right, Bonnie, this is:, you're comparing apples and oranges, (.) for sure, (0.3) °um:°, and I- ya know **I'm not enough of a molecular biologist to explain the pharmacokinetics to you,**

In her extended turn in example 2, Bonnie presents a problem that she treats as one to which Ned should have a response. In her turn, she is questioning, seeking confirmation, and also offering an account for her problem in understanding an issue related to the side effects of an osteoporosis medication with patients with hyperthyroidism.[8] Ned responds first by confirming the validity of Bonnie's reasons for raising this issue and agreeing with her assessment of the problem, thereby responding to and agreeing with the accounting portion of her turn. He then responds to the questioning function of Bonnie's turn by begging off, explaining that he is not expert enough to provide her with the missing information: "I'm not enough of a molecular biologist to explain the pharmacokinetics to you." By my semantic and interactional criteria, Bonnie's turn does questioning, though questioning is not its only action.

In example 3, a contrasting case, I do not consider Stephanie's interrogatively formatted utterance to function *interactionally* as doing questioning. Pat, the committee chair, has been leading a discussion about reducing bias in hiring practices. Pat initiates a possible close to the discussion by reporting that she intends to collaborate on an initiative to reduce bias and that such a project "will be fun to work out."[9] As Pat moves toward a change of topic, Stephanie visibly shifts in her seat, raises her hand, and simultaneously launches into her turn:

(3)

PAT: It'll be fun to work ou:t, I think.
(0.6)

⇒STEPH: .hh **Can I make a- (.) brief comment on tha:t,**
I- >yuh<- uhm: (1.6) Being on-the other side of the
co(h)lleg(h)[e,

JOHN: [huh eh heh
(0.6)
STEPH: ↑We've never had a ↑search committee in our °department.°

With the first clause of her turn, Stephanie uses a cataphoric reference or "prospective indexical" (C. Goodwin 1996) to project that she will continue with a "brief comment," and, by the use of the deictic *that*, she ties her comment to the immediately prior discussion of bias in hiring practices. Stephanie completes her syntactically yes/no interrogative clause with falling rather than rising intonation, and she allows no pause for the chair to respond after the initial clause of her turn. She instead moves directly into a next unit of talk, "I- >yuh< uhm: (1.6)", and she pauses only after reaching a point in her second clause where the syntax projects a continuing trajectory for completion (Schegloff 1979, 1996; Ford and Thompson 1996). Because of the particulars of the way in which Stephanie produces this interrogatively formatted initial turn unit—i.e., the low, falling intonation and the direct initiation of further talk—, I do not consider the utterance to be doing questioning, although it still gains her access to the floor. In terms of collaboratively constructed action in local context, Jill's turn in example 1 and Bonnie's turn in example 2 point to missing information and provide a clear slot for the recipient's response. In contrast, Stephanie's initial turn unit in example 3 does not point to missing information (at least not in the interrogative portion of her extended turn), nor does Stephanie allow an opening for a recipient response after her interrogatively formatted clause.

I move now to a more detailed demonstration of how questioning works to open possible opportunities for further participation (section 3) and how questioning functions to position a participant as consequential in a local segment of meeting interaction (section 4).

3. Shifting Dynamics of Participation

Questioning facilitates getting and using the floor in workplace meetings. Questioning actions can initiate sequences that result in the questioner's being offered a further opportunity to speak and, to varying degrees, shift the local dynamics of participation in a meeting. In the course of such a shift, a primary speaker may relinquish a more monologic hold on the floor, and other speakers may join in. The shift may be very brief or quite extended in scope. It may involve a further opportunity for the questioner to speak, and it may also involve the use of the shifted structure of participation by others, as they add to the discussion. Thus, while a questioning turn most immediately cedes speakership back to the recipient for response, questioning also initiates or projects a trajectory of action that will likely include, at the very least, a verbal or nonverbal acknowledgement by the questioner.

This contingent and negotiable interactional template minimally involves three action slots: a first turn doing questioning, a second responding, and a third offering an opportunity for the questioner to provide a receipt token or nonverbal action and/or to elaborate on a theme related to the original question. The return of the floor to

the questioner, that is, the opening of a third action slot in the sequence, is achieved through an orientation by the person providing the response (in these data, the erstwhile primary speaker), along with the orientations of other participants in the multiparty interaction, to the relevance of at least a minimal token of acknowledgement from the questioner. To display orientation to the relevance of a next turn by the questioner, responders regularly move their *face direction* (Kendon 1990, 212) toward questioner in anticipation of a next action by that participant.

Considered schematically, the template for this recurrent course of action, a sequence that is constructed in various contingently and locally emergent forms, involves three actions:[10]

1st action: question

2nd action: response

3rd action: acknowledgement and/or elaboration

In the current meeting data, as is represented in the preceding schema, questioners may use the third slots to deliver very minimal acknowledgement or acceptance, or they may elaborate in some manner (e.g., example 1).

In example 4 we see the most minimal version of the three-part sequence, with Beth producing a nonverbal acceptance of the primary speaker's response. Beth uses vertical head movements in her third turn opportunity:

(4) Beth requests clarification for the use of the pronoun *they* by Pam, the primary speaker at this moment.
BETH: They meaning (.) the Space Exploration Center?=
PAM: =No:, the the:: chair of the committee, [had, had, in consultation=
⇒BETH: [***((multiple nods))***
PAM: =with the committee, had concluded that this was the way to do it.

While the three-part action structure with even minimal and purely nonverbal response (as in example 4) may be completed in the course of three adjacent turns, the contingent and improvised nature of interaction allows for the opening up of more elaboration by the questioner, the responder, and other parties. In some cases, such as example 5a–b, while the original questioning action opens up a shift in participation, after specifying her questioning action, the original questioner remains silent during the interaction that follows the shift. In such cases, the questioning action opens participation opportunities that participants *other than the questioner* use.

In example 5a–b, Virginia produces and elaborates a questioning action (her talk involves other actions as well). She elaborates her question after one of the cochairs offers a playful response (Gwen points to the nomination of a woman for an award as the *only* actual action that the committee has taken in its short existence). After Virginia delivers a serious (rather than joking) elaboration, in which she further specifies her questioning, not only do the current primary speakers, cochairs Gwen and Pat, provide serious responses, but several other participants also expand the sequence with further contributions that elaborate on the problem and its possible solutions:

(5a)

VIRGINIA: **One other just question about how we're organizing**. .h There was that matrix of: who was gonna do what, and now there's this new group or whatever. (.) and eh- I've had some questions about like- (.) What is the committee actually doing, and I keep telling people that (we) only started a month ago, so huh but

GWEN: We nominated Heddy Sade. eh heh

VIRGINIA: Right exactly.=

GWEN: =uh huh huh

VIRGINIA: **But ih- I- I guess I- just wanna know kind of what's the procedure by which these different groups or tasks or whatever will actually ge:t (.) charged to go: >do something.<**

(1.2)

PAM: Make them write their own charges.

(0.7)

GWEN: We'll yeah uhm (.) ***((looks toward Pat))*** Well you >we're< getting there, do you wanna say ( )

PAT: Well once: w:e have people who are gonna head them all, (I mean) one possibility would be to have the group leaders meet, (.) and talk about what kind of process >they'd each like to use<

For reasons of space, I have deleted a substantial amount of talk here, including responses not only by the committee cochairs but also by three other participants. During this minute and twenty seconds, Virginia does not speak again. Then, as part of a move to close the sequence, Gwen explicitly calls on Virginia to see whether her question has been addressed:[11]

(5b) After one minute and twenty seconds of multiparty talk.

PAT: Uh but then we can also bring it back to the leadership team, and talk about it there, (.) and I agree with Pam, I think ultimately we have to have some discussion of having each one write their own charge.

(1.0)

PAM: That's what I'm trying to do on the recreation board, (.) Trying to figure out what it's about.

GWEN: mmhm

PAT: mm hm

PAM: They've never had a charge ( )

GWEN: eh heh

JERRY: huh

(4.7)

⇒GWEN: ***((facing Virginia))*** **So did you [get your question ans-**

⇒***VIRGINIA:*** ***[((multiple head nods))***

GWEN: =I think once there's a leader, once they [(.) know they ya know (.)=

⇒VIRGINIA: **[Yeah.**

GWEN: =write they'll write its charge.

At the first arrow, Gwen turns toward Virginia and asks whether Virginia's original question has been answered. At the second and third arrows, Virginia produces minimal responses, first nonverbal and then verbal. It is significant that several other

participants have expanded upon the issue that Virginia raises through her questioning. Were Virginia not explicitly called upon by Gwen, the consequence of her questioning action would have mainly been *to open up participation for others*. In addition to illustrating a shift in participation dynamics, example 5b also offers evidence for the continuing relevance of the three-part—(1) question; (2) response; (3) acknowledgement/elaboration—action sequence, as Gwen explicitly indexes it through her question to Virginia. Example 5a–b thus demonstrates that questioning can shift the dynamics of participation such that participants other than the questioner can be provided with opportunities to speak, and it also underscores the relevance of a third action by the original questioning participant, a recognition of the three-part action sequence.

Examples 4 and 5a–b both involve questioners' producing minimal responses. The cases are different in that in example 4, the questioning turn initiates a minimal version of the three-part sequence, with the parts produced adjacently. The sequence is not expanded by Beth or any other participant. In contrast, example 5a–b involves considerable expansion both of the questioning and of the sequence that follows, though the questioner's third actions are minimal (head nods and the token "Yeah.").

To summarize this section, from a conversation analytic perspective, we see that a specific course of action is initiated with a questioning turn. Although a question-answer pair may constitute a complete sequence, an adjacency pair, a third action is also commonly added, even if that turn is very brief (Schegloff 2007). The contingent opportunity to speak again in the third slot offers questioners one way into further participation. They may choose to use that third slot to elaborate on the interest they have shown in the first turn, as in example 1, section 1 (see also the examples in section 4. We see from example 5a–b that questioning may also shift participation to allow opportunities for the participation of speakers other than the questioner, a possibility that I further document in section 4, example 8.

Questioning represents one practice through which an individual's contribution is consequential in shifting the dynamics of participation in a meeting and opening opportunities for further participation beyond the primary speaker. I am interested in questioning as a means to consequentiality with respect to getting the floor and/or affecting the theme and participation opportunities that follow; I am also interested in the ways that questioning actions and the actions that elaborate on themes introduced in questioning turns serve as vehicles through which participants position themselves in relation to the primary speaker and other participants in the unfolding social structure of the meeting. We get a glimpse of such positioning in example 5a as Virginia pursues her questioning even after Gwen's joking response. In the next section I draw upon two spans of talk from a meeting of medical colleagues. I focus not only on the opportunity that is opened for further participation but also on the kinds of positioning done in each case.

4. Positioning through Questioning

By requesting information or confirmation from a primary speaker, the producers of questioning turns initially position their addressees as relatively powerful: Questioning

treats the recipient not only as the primary speaker and current holder of the floor but also as the possessor of knowledge or expertise on the current topic. However, as we have seen, questioning can also initiate a sequence of action that shifts the questioners themselves into a more central role in the meeting, at least temporarily. In addition and from the outset, questioning turns serve as vehicles through which participants can not only claim an active role in the meeting but also position themselves as holders of knowledge or expertise on a topic of current relevance to the meeting. In this section I examine two sequences initiated by questioning actions. I look closely at the emergence of the questioning action and the contingently unfolding consequences. I attend to the work it takes for a questioner to get the floor, to the kind of positioning done through a questioning turn, and to the ways that the original questioning action leads to an opening of participation opportunities. In order to manage constraints of space, I draw examples from a single medical meeting. However, the patterns I discuss here are not unique to this meeting; they are quite general across meetings, though, of course every case has features that make it unique.[12]

The meeting involved medical professionals with specializations in the problems of aging. The participants were physicians (some researchers, some clinicians, some both), pharmacologists, and medical students at various levels. They gather weekly to consider, critique, and discuss the practical relevance of recent research findings related to aging. The focus of this hour was osteoporosis treatment. While many of the group's meetings do not involve one person taking the unique role of expert in a domain, this particular meeting was led exclusively by Ned, a physician/researcher who is one of the world's leading experts on the efficacy and side effects of osteoporosis treatments.

Ned positions himself as primary speaker even before the official opening of the meeting, treating the event more as a presentation event than as an open discussion. He arrives early and sits at the front of the room, closest to the whiteboard and the projection screen. By the time the others have arrived and seated themselves around the table, Ned has set up his computer and a projector in preparation for his presentation. He opens the meeting by launching into a review of the articles that the participants have read and are prepared to discuss that day. The other members of the group smoothly co-construct the particular format of this meeting by positioning themselves as attentive recipients to Ned's report. As recipients of a presentation or lecture, participants generally limit their turns to actions of seeking clarification or raising issues related to the content of the presentation (and in this case to the content of the articles they have read for the meeting). Seeking clarification or raising issues, in these data, is regularly done through questioning.

Case 1

About five minutes into Ned's presentation, Gwen, another physician/researcher, takes a turn that fits my criteria for questioning: She points to missing information and then relinquishes the floor to Ned for a response.[13] Gwen's questioning turn initiates a sequence that leads to a return opportunity for her to talk. Through her questioning, Gwen displays engagement with and understanding of Ned's talk:

(6) [Decapitation = a method to exclude the head from post-mortem bone density measurement]

1	NED:	You can measure the right hand, you can measure the right arm, you can
2		measure the head, or you decapitate [folks. (0.7) And that's what=
3	*GWEN:*	[***((head forward, gaze twd. Ned))***
4	NED:	=they did. So they did densitometric decapitation in this and in the
5		female study. (0.7) I find that kind of worrisome, in that the
6		[cranium is a big reservoir of cortical bone, and there's still this=
7	*GWEN:*	[***((moves head forward, gazes toward Ned))***
8	NED:	=issue that we'll come to about, are we robbing Peter to pay Paul,=are
9		we taking cortical bone to put it into the tribecular component, and it
10		(.) just smells ba:d. ***((Gwen raises her hand))***
11	⇒GWEN:	Does it [↑scientifically make ↑sense to decapitate?
		[
12	*GWEN:*	[***((= downward hand strokes on "scientifically" & "sense"))***
13	NED:	***((clears throat))*** Well, they justify it by saying that we've got all this
14		other stuff, in our mouth, and [certainly for people like me,=
15	GWEN	[°oh°
16	NED:	= that's true. Ya know, we've got all these (0.4) fillings an:d,
17		ya know, you might have all your teeth pulled during the
18		study, and I-(0.4) ***((Ned gazes toward Gwen and rocks head from side***
19		***to side))***
20	GWEN:	So, at [least there would be some s[cientific (.)
		[[
21	*GWEN:*	[***((wavering hand gesture))***[
22	*NED:*	[***((repeats Gwen's gesture))***
23	GWEN:	myeh: okay,
24	NED:	***((nods))***

Although Gwen does not initiate her verbal action until line 11, she makes herself *visibly* responsive well before she begins speaking. Through the timing of her movements, she establishes a connection to particular points in Ned's report. By the time she talks at line 11, she has already coordinated her movements with the content of Ned's talk that she will address. With her nonverbal markers, Gwen displays a heightened interest at lines 3, 7, and 10. Her first forward head motion and gaze toward Ned (line 3) is placed precisely after he completes the word "decapitate", and her second movement is placed right after Ned assesses the use of decapitation by stating, "I find that kind of worrisome,". When she leans forward to begin her spoken turn but before she utters any of what we traditionally consider linguistic material, Gwen has already indexed the content of Ned's talk, which she will address in her turn.[14] Thus, through the timing of movements, Gwen indicates not only *that* she is interested but also *what aspect* of Ned's talk is drawing her attention.

By asking whether there is scientific "sense" in the researchers' decapitation method, Gwen positions herself as affiliative with and responsive to Ned's displayed skepticism regarding decapitation before bone density measurement. Gwen coordinates the downstrokes of her hand gestures to coincide with her verbal stress on "↑scientifically" and "↑sense" (line 11, nonverbal description on line 12). Both words are delivered with raised pitch and volume, which comes across to me in this context

as displaying skepticism;[15] she offers Ned a chance to provide "at least some scientific" grounds, as she partially expresses it at line 20. Thus, along with questioning, Gwen positions herself as one who affiliiliates with the skepticism that Ned has expressed.

Gwen's questioning action elicits Ned's elaboration on the rationale for the decapitation method. In his response, Ned carefully attributes the justification to the researchers rather than presenting it as his own reasoning: "Well, they justify it by saying..." In this way he continues to display skepticism by distancing himself from affiliation with the rationale behind the method. At line 15, just after a point of grammatical and prosodic possible completion in Ned's response, Gwen offers a minimal receipt: a very quiet "°oh°". This "change-of-state" token (Heritage 1984a) overlaps with Ned's continuation of his turn.[16]

At lines 17–19, Ned produces a further display of skepticism when he cuts off the syntactic trajectory of his turn and provides a nonverbal completion instead:

(6a) ya know, you might have all your teeth pulled during the study, and I-(0.4)
((Ned gazes toward Gwen and rocks head from side to side))

As Ned nonvocally displays an equivocal stance toward the rationale for decapitation, he gazes toward Gwen, offering her a slot in the sequence. She can use this slot to add another minimal acknowledgement, as she already has at line 15 (also see examples 4 and 5b), or she can elaborate in some manner and thus use the slot as an opportunity for more expanded participation.

It is not until line 20 that Gwen speaks again and this time in the clear (i.e., unlike in line 15, where her response overlapped Ned's continuation). Here, in an alternative to a brief receipt token, Gwen uses this third turn opportunity to offer a candidate understanding of Ned's assessment of the decapitation method:

(6b)

20	GWEN:	So, at [least there would be some s[cientific (.)
		[[
21	*GWEN:*	[*((wavering hand gesture))*][
		[
22	*NED:*	[((**repeats Gwen's gesture**))
23	GWEN:	myeh: okay,
24	*NED:*	***((nods))***

In line 20, Gwen uses a B-event statement, thus a questioning action, to check her understanding of Ned's response. She qualifies her statement with the adverbial "at least" along with the stress on "some", thereby again displaying affiliation with Ned's skepticism.

The interactional sequence is further expanded by a gestural action exchange between Gwen and Ned, a nonverbal initiation and response that is produced simultaneously with Gwen's talk and gesture (lines 20–21): As Gwen speaks, she produces a wavering gesture, a hand movement that seems to mirror Ned's earlier head-rocking movement. Holding her right hand out, palm downward, she waves the thumb side and then the pinky side down and up while maintaining eye contact with

Ned. Gwen's layering of this gesture on top of her verbal turn underscores her recognition of Ned's skepticism toward the reported rationale for decapitation. Before Gwen reaches the end of her projected clause in line 20, Ned has responded with an identical hand movement. In a split-second manner, Gwen treats Ned's gestural response as making irrelevant any continuation of the B-event statement she has been constructing. Significantly, just as Ned produces his gestural response, Gwen abandons completion of the grammatical unit through which she is checking her understanding: "at least there would be some scientific-".

The gestural exchange is of special interest for interactional linguistics, as it pushes at the boundaries of what we know about syntax and the construction of turns and sequences of action. The nonverbal exchange between Gwen and Ned takes place before Gwen has completed the first clause and prosodic unit of her turn at line 20. The gestural exchange between Gwen and Ned, which overlaps with Gwen's verbal turn, constitutes an action-and-response pair, and this is immediately consequential in that Gwen discontinues the syntactic and prosodic trajectory of her ongoing turn (a questioning action). She discontinues the noun phrase ("some scientific") within the developing clause, and in so doing, she abandons the clause-in-progress. Gwen then produces a responsive action with the tokens "myeh: okay" (line 24). With these tokens, she acknowledges Ned's gesture (underlined in line 22). Thus, Gwen's "myeh: okay" serves as a further expansion of the sequence, one made relevant by the gestural exchange.[17,18]

To summarize case 1, by looking at Gwen's questioning in its interactional context and by including attention to nonverbal actions, we can appreciate the work that meeting participants do to prepare for their verbal intervention, how they use questioning to initiate a sequence, and how their simultaneous production of verbal and nonverbal actions leads to further expansion of the sequence. By using body movement and gaze as forms of visible participation during Ned's developing turn, Gwen clearly marks her heightened interest at specific points in his talk prior to her own speaking turn. When Gwen delivers her first questioning action (line 11), the three potential parts of the question-response-acknowledgement/elaboration sequence unfold, including an overlapping and minimal third turn at line 15 and a longer turn at 20, a second questioning action. In her first questioning action and in the sequence it initiates, Gwen positions herself as a knowledgeable participant, and she succeeds in producing not just the original question but also a subsequent questioning action (at line 20). Finally, in the course of producing her talk at line 20, Gwen initiates a gestural exchange, and based on Ned's gestural response, she cuts off the production of her question and instead produces an acknowledgement of Ned's gesture ("myeh: okay").

Case 2

About twenty minutes later in the same medical meeting, Jill, another researcher/physician, produces a questioning action that leads into a consequential shift in participation, including contributions by two other participants, Bonnie and Xavier. Jill's initial questioning turn involves a significant display of knowledge, as does the turn she delivers when Ned offers her an opportunity for acknowledgement or

elaboration. I first explicate some features of this sequence that involve Jill's positioning herself as knowledgeable, and I then very briefly touch on the contributions of two other participants as they expand the participation shift initiated by Jill:

(7)

1	NED:	And so if you've got somebody, who's >just< devastated by osteoporosis,
2		and those people ↑exist, (.) I think >that< this is something to consider.
3		(0.8)
4	NED:	***((sniff))***
5		(2.3)
6	NED:	°okay° ***((Ned turns toward screen while touching laptop keyboard))***
7		***((as Ned turns to face the group, Jill moves her hand first out, then up))***
8	NED:	Okay. ***((reverses direction of head movement to look toward Jill))***
9		***((Ned gestures toward Jill, places hands in lap and leans back in his chair))***
10	⇒JILL:	Ned, uhm what- what's the- percent of alendronate users, (0.4)
11		have you seen that ar- you would call sort of failures.
12		(0.4)
13	JILL:	Bone marrow density failu°res.°
14		**[Ned responds at length partially deleted for space reasons]**
15	NED:	(ya know) It's just no:t that- It's just no:t, i- In my: practice, I-
16		I see basically none. .hh uhm, ***((clears throat))*** (.) I think tha:t, (1.0)
17		that, eh- (2.1) the literature suggests that failure, (.) would be really
18		high, because of non-adherence.
19		***((Jill nods and points toward Ned))***
20	⇒JILL:	And that's what it sounds like. I mean if y- if you: .hh If you
21		>can< loo:k, I mean if you know you have good adherence, (.) it
22		sounds like the likelihood of failure is very, (.) [very low.
23	***NED:***	[***((multiple nods))***
24	NED:	(Correct).
25	JILL:	°Okay:,°

Space limitations preclude more than brief attention to Jill's non-verbal actions in this segment, all of which are tightly coordinated with Ned's talk. Ned has been continuously enacting his position as presenter, a position he physically displays with upright and slightly forward posture in his seat. At line 8 he begins to rotate his head from facing away from the group (toward the screen) to the direction of the group again, including Jill (farthest from him). Just as he begins this head turn, Jill initiates an outward and then an upward movement of her hand. The upward movement of her hand coincides precisely with the point at which Ned's visual field appears to include Jill.

In moving her hand up just as she enters Ned's field of vision, Jill makes her gesture more salient. By abruptly reversing the trajectory of his head movement (line 8) just after the upward turn in Jill's hand gesture, Ned makes visible to Jill and the whole group that he is responding to Jill's hand movement. Ned's "okay" at line 8 sounds like a preface to a continuation of his presentation (Ford 2002), but he delivers it just as he appears to be taking in Jill's raising of her hand. After turning back toward Jill, Ned nods and gestures toward Jill; these movements combine to acknowledge Jill's bid to speak. By this point, Ned has also leaned back in his seat, physically

positioning himself as a recipient of Jill's incipient talk, a clear shift from the formerly upright and slightly forward-leaning position he has maintained in his interactional role as presenter.

In her questioning turn (beginning in line 10), Jill, like Gwen in example 6, displays that she is fully following Ned's presentation at that point; she produces a very specific question regarding the drug he has been discussing: alendronate. Jill's questioning prompts Ned to address another aspect of the drug, the incidence of failure. In his response, only partially reproduced here, Ned ultimately reports that the failure rate is very low as long as the white-collar patients he generally sees use the drug exactly as he orders; he also acknowledges that, in the larger population, the literature suggests that adherence to the dosage is a major challenge. Through his answer, Ned continues to position himself as an expert clinician and researcher, one who has a lively clinical practice and is abreast of the latest research findings. In delivering an extended response that offers information he had not shared until this point, Ned also treats the question Jill has asked as relevant and consequential.

In line with the three-part action sequence that recurrently leads to further participation by questioners in my data, Ned offers Jill an opportunity to speak again after line 18. Throughout Ned's lengthy response to her question, Jill has produced non-verbal responsive actions that demonstrate her attention and readiness to speak again.[19] When she does speak, what she says explicates her earlier pointing and nodding. By beginning her turn with "and," she formulates her agreement asa continuation of Ned's talk. As she continues, she claims prior access, by inference, to the information Ned has just offered in response to her questioning. With the evidential expression "it sounds like" (Chafe and Nichols 1986), followed by a restatement of what Ned has said, Jill upgrades her position to that of a co-expert. She positions herself as one who has already come to the same conclusion as Ned even without knowing the literature and without having his clinical experience:[20]

(7a) And that's what it sounds like. I mean if y- if you: .hh If you >can< loo:k, I mean if you know you have good adherence,(.) it sounds like the likelihood of failure is very, (.) [very low.

Jill's questioning thus not only gains her further access to the floor, but when she uses the opportunity to extend her participation, she positions herself as continuing Ned's talk ("and"). She also positions herself as having the expertise to have arrived at the same conclusion as Ned prior to his informing response. Her continuation, in this way, reinterprets her original questioning move, as it provides an interpretation of that first turn as a pursuit of confirmation rather than as an open pursuit of unknown information (i.e., what linguists might, in the abstract, associate with *wh*-question forms such as that at lines 10–11).

Note also that Jill's questioning action, like Virginia's in example 5a–b above, shifts the structure of participation and thereby provides an opportunity for other speakers to join in. The talk that precedes Jill's questioning has been structured around Ned as primary speaker. After Jill's elaboration and acknowledgement, a more open dynamic of participation ensues, at least temporarily, with additions by Bonnie and Xavier:

(8) Jill: °Okay:,°
(.)
NED: So if you have good adherence, and if you've ruled out secondary causes,
(.) and if you don't have hypovitaminosis Dee: [and if you have a good =
JILL: [°mmhm,°
NED: = calcium inta:ke, (.) you can be pretty sure that bisphosphonate
therapy's gonna work.
JILL: °mmhm.°
(0.6)
1⇒BONNIE: 'n' that's true among our older:- ve:ts too:, that it's rare that
I'll see a true decrease, as interpreted by the Ned and the Dexa,
((=a bone-density measure)).hh if somebody is no:t- (.)>you know<
still pretty darn immobile.'n smoking like a chimney. >ya know<
=Otherwise- (.) an' if they're taking it, >if< they're -taking it
appropriately, (a third of the ti:me,) they won't be ( ).
(0.4)
NED: °Yeah?°
BONNIE: °yeah, mhm,°
NED: I'm gonna show you some really preliminary data, in about fi:ve
minutes, that says bisphosphonates don't work, (.) at all,(.)
JILL: °uhm:,°
NED: U:m an' I thi:nk probably because the population, really is hyp- has
ba:d hypovitaminosis Dee:.but I don't know tha:t. yet.
JILL: hm.
NED: [So, (I'll[m-)?
2⇒XAVIER: [This- [This uh program for P T H, though uh it's it's very
detail:ed, >I mean it's never< gonna- you know:-that- what you- the- the
treatment, and the monitoring,= it's never gonna >kinda< wo:rk, ya know,
in primary car:e, or uh: then the what uh- so: eh- is that a that's just
a clinical protocol:, right?=It's not- It's not a research thin:g.
[°or is it,°
NED: [Correct.

[Xavier continues, using his 3rd action slot to elaborate on his initial questioning action.]

Thus, as the talk continues, two additional speakers make use of and expand upon the shift in participation structure that Jill's questioning turn initiated. Continuing the participation dynamic initiated by Jill's questioning turn, Bonnie, a pharmacologist, claims a position as co-expert with Ned. Beginning at arrow 1, Bonnie reports on her clinical experience with veterans of military service. She connects her contribution to Ned's through her initial "and" ('n'). At arrow 2, Xavier, another physician, begins his turn with a B-event statement that contains an embedded tag question ("right?"). Xavier goes on to make a practical inquiry (not shown here) as to which patients should be referred to Ned by primary care physicians such as Xavier. In example 8 we see, then, that Jill's questioning not only opens a slot for her to speak again but also produces a local shift in the structuring of participation, an opening in the interaction that others can use.

In terms of the dynamics of participation and of positioning in the hierarchy of valued expertise represented in this workgroup, Jill's questioning turn is quite

consequential. She initiates a three-action sequence that provides an opportunity for her to participate further, and in both her initial questioning and her continuation when the floor returns to her, she displays and then upgrades her position as an expert. The sequence that Jill's questioning turn initiates also shifts the participation in a manner that opens opportunities for other participants to speak, extending the temporary move away from an organization dominated by a single primary speaker.

5. Summary and Discussion

The questioning actions I have documented in this chapter form a subset of practices through which participants may gain access to the floor in workplace meetings.[21] Questioning, in this study, is understood as an action that seeks information or confirmation and involves a speaker's relinquishing the floor for an addressee to provide a response. In cases that fit this interactional definition, I have documented and explicated ways that questioning opens further participation opportunities for the questioner and others, as well as how such questioning turns and their subsequent elaborations serve as vehicles through which participants position themselves as knowledgeable and consequential in workplace meetings. Thus, among the various ways into participation (i.e., the larger collection of cases from which the questioning actions here are drawn), I find that questioning can do the following:

(a) initiate a three-part sequence offering the questioner the opportunity to speak again
(b) serve as a vehicle through which a questioner may display expertise
(c) initiate a shift in participation that allows others to participate

From the perspective of this study, therefore, questioning can be a resource for gaining a further opportunity to speak, and gaining the floor is understood as a means to power.[22] However, it is worth noting that sequences initiated by questioning, though potentially leading to further talk by the questioner, do not always result in the primary speaker or other participants strongly embracing the issue raised by the questioner.

A case in point is a turn by Gwen. In example 9, Gwen raises a generically important theme for medical research in North America, attention to the race of experimental subjects:

(9)
1 NED: [So I think, osteosarcoma is still on the plate. as a concern.
2 *GWEN:* [***((starts to raise hand but retracts by end of Ned's "I think"))***
3 NED: That's the punch line, °of all of this.°
4 *GWEN:* [***((speaks with hand up (line 5) as she looks down at article))***
[
5 GWEN: **[I mean this just caught my eye, and I don't know if this is**

6		**relevant, but, this case report is in a black woman,**
7		**[a hundred percent of the (.) at least in the male study,=**
8	NED:	[umhm
9	GWEN:	**=were white, and there is some calcitrophic axis (.) bone**
10		**difference between blacks and whites, right?**
11		(0.8)
12	NED:	Yeah, blacks tend to have (.) have lower bone turnover (.) than, than
13		whites,
14	GWEN:	**So, does that- do you think that's just a coincidence, or is there**
15		**anything to make of that,**
16		(0.8)
17	NED:	I'm:, I don't know, but you're right, I- all- I-I think essentially
18		every patient that's: received PTH in the clinical trials has been
19		Caucasian,
20	GWEN:	**And the one case report is in a black woman.=**
21	NED:	=Actually, they they cite three other cases.
22	GWEN:	um
23	NED:	So, there are now four cases of (0.3) concomitant osteosarcoma with
24		primary hyperparathyroidism, whether that's (.) causative or simply (.)
25		coincidence, I don't know, but if uh- **the point that I'm making is** if
26		somebody simply tells ya that (.) PTH is safe because it's never been
27		reported to cause- to coexist with osteosarcoma, (.) and primary
28		hyperpara, you can say, well:, yeah, not exactly.

As in other cases, Gwen's questioning in example 9 gains her access to expanded opportunities to speak, which she uses to further pursue the issue of race and osteoporosis research, positioning herself as knowledgeable regarding technicalities such as the "calcitrophic axis (.) bone difference in blacks and whites". In that sense the case supports the general practice I have outlined in this chapter of questioning as a way of gaining the floor and of positioning oneself as an expert. One might argue, however, that Ned is very cautious not to acknowledge any problem with racial bias in the research. He confirms that "blacks" have a lower rate of "bone turn over (.) than whites" and that clinical trials have been "essentially" directed toward whites, and he is also quick to correct Gwen's representation of there being only a single case report of osteosarcoma that happened to involve a black woman. He reports that there were three other cases, but he does not comment on the race of those individuals. By doing both confirmation and correction, Ned continues to position himself as the holder of special expertise. As an alternative, for example, he might have credited Gwen for raising an important issue. He might have noted aloud that one out of the four cases of this very negative side effect involved a black woman and that that is worthy of attention. Yet in lines 23–28, Ned moves away from the issue of race; he frames his shift with "the point that I'm making is" (in bold), a transition form that retroactively indexes and constructs the sequence initiated by Gwen's intervention as one that strays from the point he is trying to communicate.

Nevertheless, by questioning Ned about the case report of a deadly cancer in a black woman treated with the drug under review and by expanding upon the theme,

Gwen has used a questioning action to call attention to a crucial, highly consequential issue that, at least in this meeting, was otherwise neglected.[23] Even in this case, then, the use of questioning should be seen as a powerful practice for gaining space, time and potential influence in the workplace. Regardless of whether the primary speaker affiliates with and expands upon the argument that the questioning may entail,[24] the power of questioning to shift participation remains.

Furthermore, the consequences of raising critical issues may accumulate when the same theme is raised again and again. In an interview with me after I had recorded several meetings in which she participated, Gwen discussed the fact that she works in a context where white males dominate and the traditional and default subjects of medical study are white males. She believes that this results in serious problems in the medical treatment of women and people of color. Gwen remarked with some humor that she often views herself as the designated agent charged with raising neglected questions concerning these populations. While Gwen would certainly wish that this task were not necessary, she has no intention of stopping her practice of repeatedly raising critical questions about equitable medical research and medical care. She uses her position as a respected clinician and medical researcher to give voice to such questions.

Questioning is a practice that appears to be generically relevant in meetings; one seems to have the right to raise questions at any time.[25] Questioning can serve as a vehicle not only for opening participation and positioning oneself as an expert in a meeting group. It also serves as a vehicle for raising issues one is committed to making more visible in one's workplace. There are accumulated consequences of voicing such challenges. Certainly institutional change results from sweeping political statements and large-scale policy reforms, but institutional biases are also made visible and challenged through the repeated work of individuals such as Gwen as they use questioning as a way to claim time and space in meetings.

Notes

1. I thank Mary Bucholtz, Molly Carnes, Barbara Fox, Gene Lerner, Karen Johnson Mathews, Emanuel Schegloff, and Sandra Thompson for discussions of aspects of this study. Alice Freed, Susan Ehrlich, Charles Goodwin, and Harrie Mazeland deserve special thanks for close readings of an earlier version of the chapter. I hope the resulting report shows the benefits of their comments. I acknowledge, of course, that I am responsible for how much I was able to use their advice, comments, and edits.

2. See Wilkinson and Kitzinger (2003) for an example of how the concept of positioning can usefully be explored in interactional data as opposed to interview data.

3. Transcriptions contain conversation analytic symbols created by Gail Jefferson (see Atkinson and Heritage 1984). To these I have added double parentheses and italics to indicate non-verbal actions, double parentheses and no italics for terms that may be unclear (e.g., "subcue ((=subcutaneous))"), and square brackets containing descriptions of talk for spans of talk deleted in the interest of space.

4. I use a single meeting in order to reduce the space required for introducing the context for each example.

5. My study here is also informed by research by discourse linguists, functional linguists, and discourse analysts who might not affiliate with CA or IL but whose methods are certainly akin to and compatible with mine. Questions have long been understood as capable of doing

multiple actions (Hudson 1975; Ervin-Tripp 1976; Freed 1994 among others), and the study of gender and language has often centered on forms and interpretations of questions (Lakoff 1975; Fishman 1978; Cameron, McAlinden, and O'Leary 1988, among others). All of these researchers have made connections between question forms and social functions, pointing to the multifunctionality of forms that can be syntactically defined as interrogative (including declaratives with rising intonation).

6. For possible exceptions, see, for example, Schegloff (1979, 1996), Heritage (1984a), Heritage and Roth (1995), Lerner (1991, 1996), and Raymond (2003, 2004).

7. I do not take issue with Freed's findings that interrogative forms are closely related to the functions of such utterances. Her case is well supported. My focus here is not on the work of interrogative forms but rather on the functions of questioning and specifically on questioning as an action that initiates a three-part sequence that regularly provides the questioner with a further opportunity to speak.

8. Charles Goodwin (pc) points out that, in example 2 and others in the collection, the questioning turn also contains an argument of its own, one that the addressee is put in a position to respond to. This makes these special sorts of questions, an observation that will be fruitful to pursue.

9. On closing, see Schegloff and Sacks (1973); Schegloff (2007).

10. Focusing on various events and contexts, research on similar sequences goes back at least to Sinclair and Coulthard's (1975) discourse analytic research on classroom interaction.

11. With respect to my working definition of questioning, it is interesting to note that, when Gwen addresses Virginia, she refers to Virginia's initiating action specifically as a "question."

12. To offer a rough impression of the prevalence of questioning as a way in, I counted the number of questioning actions by nonprimary speakers during the course of another hour-long meeting. I noted the number of these actions that led to further talk by the questioner. Out of twenty-seven questions by nonprimary speakers, twenty-four (89 percent) led to opportunities for the questioner to continue talking after receiving a response from the primary speaker. In a number of these cases, through the question-answer sequence the original questioner is collaboratively constituted as a primary speaker, often for extended periods of elaboration and discussion.

13. Gwen in this medical meeting is the same individual who chaired the committee from which examples 5a and 5b are excerpted. These committees represent different parts of her workplace responsibilities.

14. Schegloff (1996) and Linton and Lerner (2004) have termed preturn actions "pre-beginnings," moves that project the possibility that a nonspeaking person is moving toward turn initiation. See also Kendon (1977) on "pre-exchanges." Charles Goodwin (1979, 1981) first documented the fine-tuned coordination of bodily movement, gaze, turn construction, and turn revision. Also see Schegloff (1987).

15. How Gwen's stress and gestures come across as positioning her in alignment with skepticism deserves analysis in itself.

16. See Jefferson (1986) and Ford and Thompson (1996), among others, for discussions of the precision of overlaps.

17. The prosody of her "myeh:" would be interesting to explore and compare with like tokens in like contexts, especially in light of research on the work that variations on "yes" or "no" may do (Jefferson 1978b; Raymond 2003). In Gwen's turn at line 20, the combination of the two tokens constitutes a possible closing of the sequence. Gwen does not add further verbal turns at this point, and no one else expands the theme. Ned then returns to his reporting role:

Ned: hchumhum *((clears throat))*. (0.4) And their outcome measures, other than <u>that</u>, look pretty good. Their biochemical markers are all in formation, they measured, uh, serum [...]

18. From an interactional linguistic perspective, we might note that Gwen's turn at 20 offers a case possibly related to the phenomenon of "discourse within a sentence" (Schegloff 1979; Hayashi 2004). In this instance, however, the non-verbal response from Ned serves as a second pair part to Gwen's syntactically and prosodically incomplete candidate summary evaluation of the decapitation method. Here a visual question-and-response sequence is enacted simultaneously with a questioning turn such that the development of syntax within the verbal turn is cut short and a verbal acknowledgment of the recipient's (Ned's) non-verbal action is acknowledged. The gestural exchange between Gwen and Ned affects the emergent context for and syntax within Gwen's talk in line 20 (see C. Goodwin 1981, 1995).

19. To support my sense that her nonverbal actions display her "readiness to speak again" would require a fuller discussion.

20. Compare Heritage and Raymond (2005) on "terms of agreement," a study of ways in which interactants are capable of agreeing with the previous speaker while simultaneously claiming prior or more intimate access than the original speaker to the information or assessment they are responding to.

21. For documentation of other turn-initiating practices used by women in these data, see Ford (2008).

22. At the same time, of course, silence is not always a reflection of powerlessness, any more than volubility is invariably an enactment of power (Gal 1991). Gaining an opportunity to speak is only one means to the possibility of having effects in one's workplace.

23. I do not want to leave the impression that women like Gwen can, should, or do effect change only in small, cumulative ways. The woman I refer to as Gwen in these examples is highly visible and quite impressive in her participation at all levels of her workplace.

24. I thank Charles Goodwin and Harrie Mazeland for noting the ways in which the questioning turns in my collection may be special in that they contain arguments or rhetorical positions and may constitute a preliminary action that, though syntactically and prosodically independent, strongly projects further elaboration (Schegloff 1980). In Ford (2008), I consider the ways that questions are understood as taking issue with or otherwise challenging previous talk.

25. As with many other turn-taking practices, the initiation of questioning turns clusters around possible turn-completion points in a primary speaker's talk.

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ASCB 50TH ANNIVERSARY ESSAY

A Richer and More Diverse Future for Cell Biology

Sandra L. Schmid,* Molly Carnes,† Ursula Goodenough,‡ Nancy Hopkins,§ Phoebe Leboy,‖ Sandra Masur,¶ and Virginia Valian#; on behalf of the ASCB Women in Cell Biology Committee

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Our vision: within the next few decades the composition of the faculty of cell biology, and of all biological science departments, will reflect the diverse composition of the graduate students in those departments. We are far from that reality today. Disparities in representation exist for both gender and race. Tyrone Hayes' essay in this volume provides a compelling discussion of the challenges faced by people of color in the sciences. Here we focus on gender. Fully 50% of current biology Ph.D. graduates are women. Most of those women continue training as postdoctoral fellows. Yet the percentage of women declines with each advance along the tenure-track academic career path, so that <20% of full professors in the biological sciences are women (c17 Committee on Maximizing the Potential of Women in Academic Science and Engineering, 2007); the number drops to <15% in top-tier institutions (Handelsman *et al*., 2005).

At almost every major scientific conference the featured speakers are predominantly (typically more than 70%, and sometimes almost exclusively!) male. Meeting organizers will reasonably point out that the outstanding scientists invited as featured speakers are drawn from the pool of more established investigators. Thus the number of invitations to women is in fact proportional to their numbers in the senior faculty ranks. Often implicit in this argument is the notion that earlier differences in the numbers of women graduates are largely responsible for the paucity of women speakers and that it is just a matter of time before balance is achieved. However, the numbers show that the mere passage of time is not enough. A 2003 National Academies of Science (NAS) report comparing percentages of women assistant, associate, and full professors relative to pools of Ph.D.s who graduated 0–6, 7–15, or ≥16 years, respectively, before 2003 has documented a ≥20% drop in the proportion of women at each stage (c17 Committee on Maximizing the Potential of Women in Academic Science and Engineering, 2007).

The women (and men) who leave academia and use their scientific training to follow other career paths contribute significantly to society in diverse and valuable ways. So why is the loss of women important, and how does it affect cell biology and biomedical research? Creating and maintaining diversity in science is important for several reasons. First, diversity provides a greater opportunity for innovation: breakthroughs emerge by looking at complex problems from diverse perspectives. Second, as some businesses are realizing and several studies have shown (Page, 2007; Polzer *et al*., 2002), inclusive enterprises with a diverse work force that recognize and value unique individual contributions tend to be more successful than more homogeneous ones. Third, as the complexity of scientific problems increases, the need to build and to work within inter- and multidisciplinary teams increases. Women leaders have documented success in building inclusive teams that solve complex problems (Eagly and Carli, 2007; Caliper, 2005). Fourth, huge resources are invested in training graduate students and postdocs. Therefore, according to the NAS report (c17 Committee on Maximizing the Potential of Women in Academic Science and Engineering, 2007), "neither our academic institutions nor our nation can afford such underuse of precious

Clockwise from top: Sandra Masur, Ursula Goodenough, Phoebe Leboy, Molly Carnes, Virginia Valian and Nancy Hopkins. Center: Sandra L. Schmid.

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human capital in science and engineering." Importantly, ample evidence shows that the slower advancement of women is not due to differences in early career aspirations, mathematical or cognitive abilities, productivity, or other objective performance criteria (c17 Committee on Maximizing the Potential of Women in Academic Science and Engineering, 2007).

What will have changed to enable this greater diversity and to more equitably harness the talented pool of today's graduate students? In other words, what are the barriers maintaining the current inequitable situation? Virginia Valian, in her book *Why So Slow: The Advancement of Women* (Valian, 1999), describes two critical factors. The first is "gender schemas," frameworks we all use to differentially perceive the roles and behaviors of men and women in our society. The second is "the accumulation of advantage," the fact that small differences add up to considerable disparities in advantage and disadvantage over time. The latter point is driven home by a computer simulation in which an equal pool of 500 men and women progress through eight stages of promotion to fill the top ten positions in a hypothetical hierarchical organization. Even if a tiny bias in favor of men—one that accounts for only 1% of the variance—operates at each decision stage, then men ultimately occupy 65% of the top positions (Martell *et al*., 1996). As Valian puts it, "molehills can become mountains."

Gender schemas exert their influence largely outside of awareness. Although everyone intends to treat others fairly, gender schemas affect the ways in which we interact with our children, teach our students, mentor and promote our postdocs, hire our colleagues, and assess our peers' grants and papers. In numerous laboratory studies, when panels or individuals are asked to evaluate identical resumes, career accomplishments, or professional performance, average ratings are lower when the subject is identified as a woman (Handelsman *et al*., 2005; Valian, 1999). Importantly, this disparity is true regardless of evaluators' gender. Men and women are equally likely to underrate women.

One striking study of review panels of the Swedish Medical Research Council found that to receive the same rating in "scientific competence" women applying for postdoctoral fellowships needed to publish substantially more papers and/or in higher impact journals than their male peers (Wenneras and Wold, 1997). The good news is that judges are responsive to data. Follow-up work demonstrates that since the publication of the landmark Swedish study, there is no longer any disadvantage for women applying to these review panels (Sandström and Hällsten, 2008).

In the future, if we do our job right, a career in science will be equally and highly attractive to both girls and boys. Their perception of the stereotypical scientist will be gender-neutral. Thanks to a more diverse faculty, a greater appreciation of the value of diversity, and an understanding of how unintentional differences in treatment produce unequal benefits, male and female graduate students will be mentored more effectively. Outstanding women and men who demonstrate a passion for exploration, and the requisite creativity, intuition, and deductive reasoning skills will be equally encouraged and supported in their pursuit of academic careers. Scientists will work in fluctuating multidisciplinary teams in a spirit of cooperative competition to solve complex problems. Peer review will be rigorous, yet constructive: it will be free of unintended differences in treatment based on sex or race. Institutions will be more flexible in tenure and promotion decisions for both mothers and fathers, realizing that the time they spend raising a family is an important and integral period of a multi-decade productive career in science. Institutions will provide resources and daycare centers to accommodate parents, so that talented young faculty will be productive and supported.

Can we achieve this nirvana? We are optimistic given the enormous progress that has been made in the past decade since the release of a report on the Status of Women Faculty in Science at MIT (Massachusetts Institute of Technology, 1999). For example, at that time there were zero women in the academic administration of science or engineering. Today the President of MIT is a woman, three of five current Deans are women, two of six department chairs in science and one in engineering are women; the numbers of women faculty in science and engineering have more than doubled. Having children is now not only discussed openly, but women have actually taken maternity leaves and gotten tenure—for the first time in MIT's history. Finally, there is a daycare center in one of the most prominent and heavily trafficked places at MIT. MIT is not alone: other universities have achieved similar results. In some cases these changes were initiated through National Science Foundation ADVANCE grants (Sheridan *et al*., 2010). In all cases they have required consistent effort and the partnership of women and men faculty with committed administrators, both male and female. To achieve our vision we will need to continue these efforts and ensure that people in leadership positions fulfill their mandate to *lead*. Fortunately, from these positive examples we now know a lot about how to support, recruit, retain, and promote the excellent women researchers who graduate from our Ph.D. programs. With increased appreciation for the importance of diversity and heightened sensitivity to unintended bias and its cumulative consequences, we can all contribute to accomplishing our vision.

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DR. MOLLY CARNES

Helping women *advance in* SCIENCE AND MEDICINE

By Kathryn Kingsbury

When Dr. Molly Carnes attended her first sectional meeting after receiving tenure in the University of Wisconsin's Department of Medicine in 1990, she was struck by an unexpected discovery: She was the only woman in the room.

In her clinical specialty of geriatrics, many of her colleagues had been women: nurses, social workers, pharmacists and physicians. But in this new world of academic medicine, she was all alone. "I wondered what was killing off the female medical students before they became faculty," she says.

Now Molly spends much of her time looking for answers to that question and sharing her results through two university institutions: Women in Science and Engineering Leadership Institute (WISELI, pronounced "wisely") and the UW Center for Women's Health Research (CWHR), where she is director.

WISELI, which she co-founded in 2002 with UW microbiologist Jo Handelsman, conducts research into the institutional barriers to women's advancement in science and helps universities across the country apply its findings. CWHR helps women establish careers in academic medicine and supports research into women's health — a crucial need, given that medical studies have traditionally focused on men, leaving doctors with little information about how diseases and treatments can affect women differently.

The bad news

The relative scarcity of women in the higher levels of academic sciences is a serious problem. According to data compiled by WISELI, about 45 percent of PhDs in the life sciences go to women, but only 15 percent of full professorships do. The numbers are even worse in engineering and physical sciences. In engineering, the rate for women with doctoral degrees is 15 percent, while the percentage of full professors is a paltry four percent.

The figures might strike some people as hopeless, but they motivate Molly to keep up her work. "What's the point of becoming a leader if you can't use that position to change the system?" she says. Research by Carnes and others has found that "unconscious biases that we all have can affect women's and men's place in employment, usually to the disadvantage of women," she says. For example, a Swedish study found that women had to be two-and-a-half times more productive than men in their research and publications in order to receive the same ranking for a prestigious postdoctoral award. In another study, academic psychologists were sent a curriculum vitae that was randomly assigned either a woman's or a man's name. The psychologists were more likely to say they would hire the individual when the curriculum vitae carried a man's name, whether the psychologist doing the rating was male or female.

The good news

But there is good news. When people learn about these biases and the barriers they present, they become aware of their own thinking and are less likely to dismiss female job and award applicants out of hand. "We're advancing women in science from an evidence-based perspective," says Molly. After WISELI began educating department heads about hiring bias, faculty makeup began to change. Jennifer Sheridan, WISELI's executive director and research director, reports that only 10.2 percent of professors hired in the College of Engineering between 1999 and 2002 were women; between 2003 and 2009, 29.1 percent of new hires with a tenure home in the College of Engineering were women.

Molly comes from what she calls "a long line of feisty women" and a family that regularly talked about learning and social justice around the dinner table. Her mother served in the U.S. Navy WAVES (Women Accepted for Volunteer Emergency Service) during World War II, and her dad was active in the civil rights movement.

But her life might have gone in a completely different direction. "I dropped out of college when I had my identity crisis in the early 1970s," she says. Amid unrest about the Vietnam War, a campus-wide civil rights strike and the slaying of four students by the National Guard during a protest at Kent State in Ohio, she became unsure about her purpose. "I

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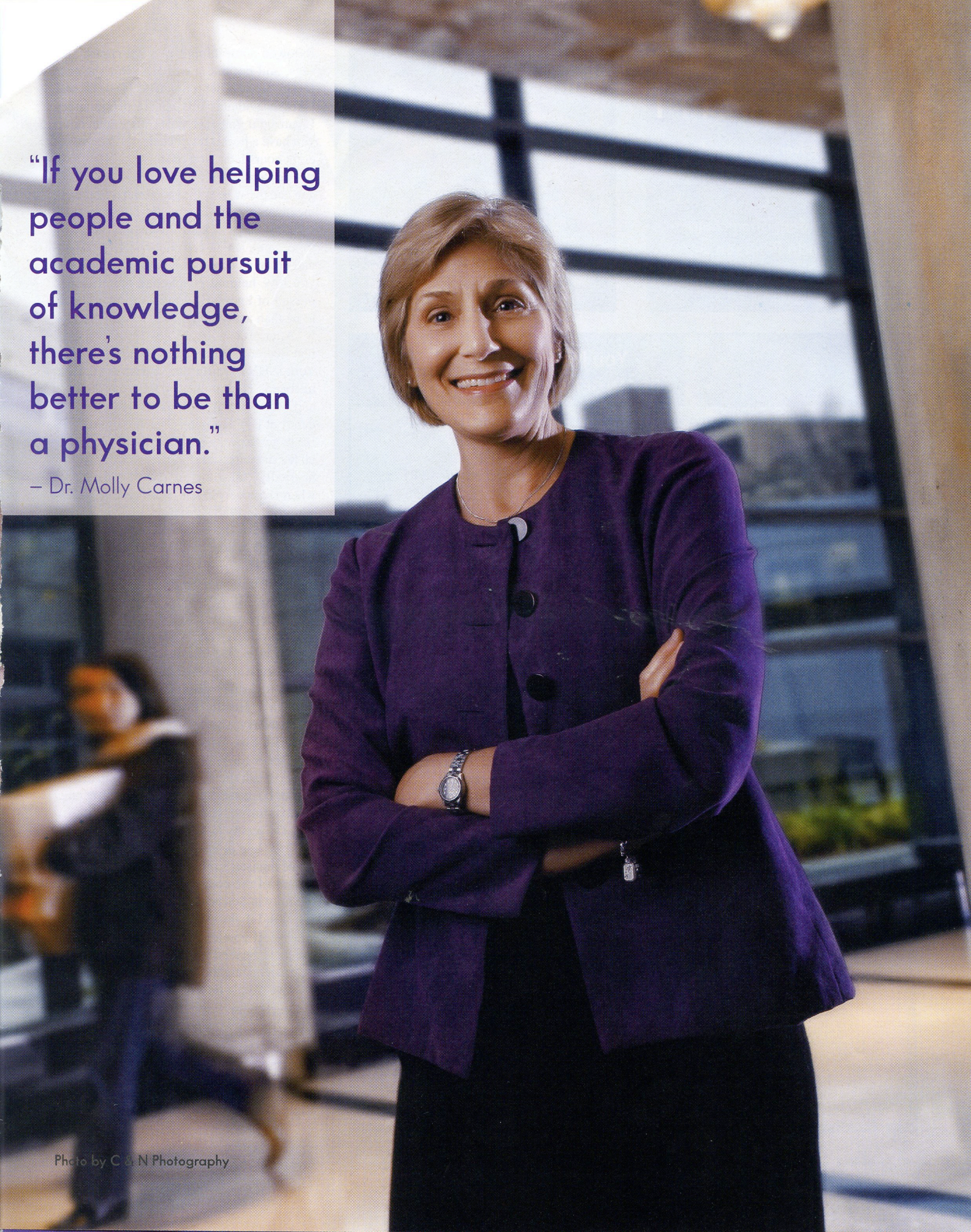

"If you love helping people and the academic pursuit of knowledge, there's nothing better to be than a physician."
– Dr. Molly Carnes
Photo by C & N Photography

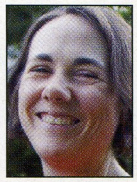
followed some hippie to a ski resort," she says, and became a waitress. But she soon began to see her choice as a dead end. "Women without skills had few opportunities. I realized if you wait tables, after eight hours you have a pocketful of change. If you study, eight hours later, you're smarter."

Molly returned to the University of Michigan and threw herself into learning. She chose medicine because it was one of the most involved courses of study available. "You have to master such an enormous variety of facts and get at its core as a helping profession. If you love helping people and the academic pursuit of knowledge, there's nothing better to be than a physician."

After graduation, Molly earned her medical degree at the State University of New York (SUNY) in Buffalo, where she met her husband. They moved to Madison in 1978 and Molly began her internal medicine residency at UW Hospital. She chose to specialize in geriatrics, a new field at the time. Like all her pursuits, she embraced this one wholeheartedly, finishing in the 98th percentile when she received her board certification in geriatrics in 1988. "What attracted me to geriatrics is the same thing that later attracted me to women in science and women's medical research. Each involves a vulnerable group of people that is being underserved," she says.

Today, Molly is a professor in three different departments at UW-Madison: medicine, psychiatry and industrial and systems engineering. On Mondays, she conducts clinical practice at the veteran's hospital on Madison's west side, where she founded the VA Women's Health Program in 1994. On Wednesdays, she focuses on her work for WISELI. She spends the rest of the week at the Center for Women's Health Research — that is, when she's not traveling to share findings of her health and gender research at other institutions. In November, she traveled to Tulane University in New Orleans and to Rome (yes, the one in Italy) at the invitation of the prime minister's office to present her findings as part of the country's "Practicing Gender Equality in Science" initiative.

Asked if she ever has time to rest, Molly laughs. "If you love what you're doing, how can that be called work? What could be more fun than having the opportunity to work with creative people on a new idea?"



Kathryn Kingsbury (www.kathrynkingsbury.com) is a Madison-based writer.

THE CHRONICLE
of Higher Education

Labor & Work-Life Issues

January 19, 2010

Time Crunch for Female Scientists: They Do More Housework Than Men

By Jill Laster

When the biologist Carol W. Greider received a call from Stockholm last fall telling her she had won a Nobel Prize in Physiology or Medicine, she wasn't working in her lab at the Johns Hopkins University. The professor of molecular biology and genetics was at home, folding laundry.

Ms. Greider does many of the household chores, but she isn't alone. A number of her female colleagues also do more around the house than their male partners.

"It is not just housework. For women with kids, it is all the other stuff: scheduling sports and play dates, play dates, remembering all of the calendar events for the whole family," said Ms. Greider, who has two school-age children.

A new study from the Michelle R. Clayman Institute for Gender and Research at Stanford University has found that female scientists do 54 percent of their core household tasks, such as cooking, cleaning, and laundry—about twice as much as their male counterparts. (Paid help and children made up some of the difference.) The results reinforce the findings of other studies. Most important, they indicate that women often have more obligations at home and lower retention rates in their fields.

The study, "Housework Is an Academic Issue," found that women's academic rank had little impact on their household-chore percentage; senior and junior faculty members put in similar hours. Women also worked at their paying jobs about 56 hours a week, almost the same number of hours as men do.

Men contributed more to home repair, finance, and yard and car care. But those tasks took about one-quarter of the 19.3 hours a week spent in a home on core household tasks, according to the study.

Less Time for Academic Work

Jennifer Sheridan, executive and research director of the Women in Science & Engineering Leadership Institute at the University of Wisconsin at Madison, said many women in the work force—not

just scientists—do a disproportionate amount of housework. But because a successful scientific career demands more than 40 hours a week, she said, female scientists could be especially affected.

Ms. Sheridan also said that more housework doesn't affect the quality of work but its quantity, which could make a difference in academe.

"Some studies of faculty productivity have found that women faculty may produce fewer articles, but the ones they do produce tend to be cited more frequently," Ms. Sheridan said. "But in an academic institution where the number of your publications or grants is the thing that is most highly valued, that is a problem."

Scientific groups are especially concerned about retention after the postdoctoral period. According to a report published last year by the National Academies, women made up 18 percent of the applicants for tenure-track positions in chemistry at Research I institutions between 1999 and 2003, although women earned 32 percent of the Ph.D.'s in chemistry. In biology, women made up 24 percent of the applicants for tenure-track positions, although they earned 45 percent of the Ph.D.'s.

Lorraine Tracey, vice chair of the National Postdoctoral Association's 2010 Board of Directors, said the challenge of raising a family and trying to work 60 or more hours a week doesn't appeal to many women. The National Postdoctoral Association has received a grant from the National Science Foundation to look at how to retain female postdoctoral students in academe and help get them to tenure-track positions.

Ms. Tracey, who is also a postdoctoral research associate at St. Jude Children's Research Hospital in Memphis, said additional personal responsibilities could add up over time for younger female scientists.

"If you have five hours a week less than your male counterparts available for your research over the five- to 10-year period of your graduate and postdoctoral training, this certainly adds up to a significant amount of time that I imagine could impact your competitiveness in the marketplace," she said.

Help With the Housework

One possible solution could be for universities to create more-flexible benefits packages that allow men and women to hire household labor. Londa Schiebinger, one of the study's two authors, said such cafeteria-style benefits would let employees figure out what sort of help they needed on an individual basis.

"You have labs and you have offices and you have experiment equipment," said Ms. Schiebinger, who is director of the Clayman Institute and a professor of the history of science at Stanford. "Another thing that people need to succeed is a good work-life balance. I think supporting housework is a way universities can guard their investment in these young faculty members."

American employers generally do not provide benefits to assist with housework, although some companies in other countries do, the study found. For example, Sony Ericsson in Sweden pays for housecleaning from some service providers, and the Swedish government is looking at tax relief for domestic services.

The recent economic downturn might mean that now is not a good time for universities to consider expanding employee benefits, Ms. Schiebinger said, but the study looked at long-term solutions and long-term problems.

Ms. Sheridan said a flexible-benefits plan is an interesting idea, although academe must also deal with deeper cultural issues. For example, she said, some female scientists come from cultures where hiring outside household help is taboo.

"So, this policy idea isn't a miracle cure-all to deal with this problem," Ms. Sheridan said. "A cultural shift is also needed, and that's far more difficult to achieve."

THE CHRONICLE
of Higher Education

On Hiring

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January 20, 2010, 11:40 AM ET

How Dishwashing Works Against Tenure

By Gabriela Montell

An article in yesterday's *Chronicle* notes that there's still a lot of inequity when it comes to household chores, according to a study from the Michelle R. Clayman Institute for Gender and Research, at Stanford University. The study, "Housework Is an Academic Issue," found that female scientists shoulder "54 percent" of "core household tasks, such as cooking, cleaning, and laundry—about twice as much as their male counterparts," while still working "at their paying jobs about 56 hours a week, almost the same number of hours as men do."

They are hardly alone. Many working women "do a disproportionate amount of housework," says Jennifer Sheridan, of the University of Wisconsin at Madison's Women in Science & Engineering Leadership Institute.

That's hardly a revelation. For the scientists, though, "more housework doesn't affect the quality of work but its quantity, which could make a difference in academe," Ms. Sheridan told *The Chronicle*. "Some studies of faculty productivity have found that women faculty may produce fewer articles," a crucial factor in tenure-and-promotion decisions.

The question is what to do about the problem. Londa Schiebinger, one of the authors of the study, suggests that college provide flexible-benefits packages to help with housework, like some Swedish companies do. But that's unlikely to happen at a time when campus budgets are under increased pressure, Ms. Sheridan notes. What solutions do you propose?

As one commenter on the article noted, it's not simply a matter of women with spouses and children "just individually turn[ing] the entire societal tide in which we swim and announc[ing] 'It's now 50/50!' And therefore, it will happen." Nor do we need "a law dictating which spouse takes out the garbage, who does the cooking, etc.," as another noted sarcastically.

Read about how some academic couples divvy up their household duties and tell us what works for you.

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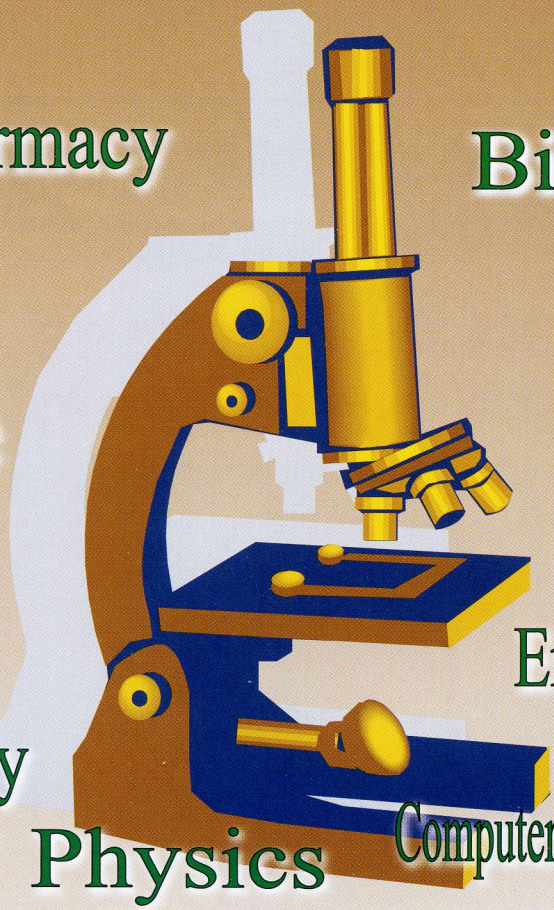

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Congratulations to the Black women scientists and engineers whose achievements improve our communities, our state, our nation, and our world.

WISELI
Women in Science & Engineering Leadership Institute
University of Wisconsin-Madison

WiscAMP
Wisconsin Alliance for Minority Participation

GE RS Graduate Engineering Research Scholars

Center for Women's Health Research
University of Wisconsin-Madison

MAKING VISIBLE THE INVISIBLE

Molly Carnes picked an odd time to shut down her laboratory. After years of medical training, grant writing, and bench work, she had achieved tenure. But she quickly discovered that she was the only woman with that distinction in her department, which happened to be the largest department – medicine -- at the University of Wisconsin-Madison. For the first time, Carnes says, she felt what it was like to be part of a stigmatized, marginalized group.

So she did what any good scientist would do, she set out to understand why -- why it was that more women weren't advancing in science. Armed with a mid-career leadership grant from the National Institutes of Health (NIH), Carnes went back to school, earning a master's degree in epidemiology so she could study the problem from a disease perspective.

"I wanted to know what could possibly be "killing off" these women students before they ever got to be full professors," said Carnes, who went on to co-found the Women In Science and Engineering Leadership Institute (WISELI) at her university. "There is no disease in Western society that has the mortality rate that we see in these poor women scientists."

The Ugly Truth

Women may enter the sciences at near equal numbers to men, but they are lagging far behind when it comes to coveted tenure-track positions in academia. According to data from the National Science Foundation (NSF), women are twenty-four percent less likely than men to become a full professor. That translates to only around a quarter of tenured and tenure-track positions in science and engineering disciplines being held by women. So what is keeping women from succeeding in science?

"I think it is actually clear what the problem is, and I think we pussyfoot around it with all of these alternative explanations that have to do with our biology or desire to raise a family, things that none of us can fix," said Meg Urry, a professor of physics at Yale who has sat on a number of national committees on the status of women in science. "The real truth is these fields are elitist and hierarchal and competitive in ways that are off-putting to women. And that women's abilities are underestimated and undervalued."

Urry references a wealth of experimental literature from a number of fields -- industrial organization, psychology, management studies – in support of her argument. One

such study examined the peer review system of one of the major funding agencies for biomedical research in Sweden, a nation where women are awarded 44 percent of doctoral PhDs but go on to occupy only seven percent of professorial positions. In their analysis, researchers Christine Wennerås and Agnes Wold found that a female postdoctoral applicant had to publish at least three more papers in a top science journal, or twenty in lesser-known journals, to be judged as productive as a male applicant.

The measures of success that underlie the current “meritocratic” system in academia are often arbitrary and applied in a biased manner, states Beyond Bias and Barriers, a 2006 report by the National Academy of Sciences. Men and women alike tend to overestimate male achievements and underestimate female performance. But many in the hard sciences are still quick to discount research that calls into question their own objectivity.

“As scientists, it is our job to observe the natural world and draw deductions,” said Urry, who reviewed the report. “We believe our ability to come to objective conclusions from the data is the most important thing of all. So if I go tell my colleagues that they are biased, they freak out because if they are biased they are not good scientists.”

As a well-respected molecular biologist and senior faculty member at MIT, Nancy Hopkins was among the first scientists to recognize there was a problem. But even she admits that it took almost two decades for her to realize that it extended beyond the biases affecting her own life and actually was affecting virtually every other woman in the field.

“If you are undervalued every time you present, every time you speak, every time you express a thought, every time you publish a paper, think of the impact of that,” said Hopkins. “I started out believing the only barrier for women would be having to compete with people who work 70 to 80 hours a week when you are also the primary care giver of your children. So I thought if I made the choice not to have children, there wouldn’t be any barriers, but that is not true.”

Hopkins chaired the First Committee on Women Faculty in the School of Science, which is credited with sparking a national discussion on gender equity. She says that when she later became co-chair of the Council of Faculty Diversity and a member of the Academic Council, she was the first woman at MIT to ever see tenure, promotion and salary data. Now the current president is a woman, and those numbers are reviewed every year by equity committees at all five schools at the university.

“Just getting the data and understanding the problem is an important first step,” said Hopkins. “I don’t think there is any bad will intended, I think it is just invisible. That’s why it takes so long to create real solutions. You need people who have experienced these things to tell you what the problem is, and then you need someone to come up with the solution, and then you need to implement it.”

First Steps

Recognizing that self-awareness of such biases is half the battle, Mary Wyer has been working to incorporate gender literacy into the curriculum at North Carolina State University. Wyer, a professor of Women’s and Gender Studies, says that men and women could stand to benefit from thinking in more nuanced ways about how they interact in research environments.

“The logic is that if we want the next generation of scientists to behave differently, we have to teach them different stuff,” said Wyer, who co-edited a book called Women, Science and Technology. “The traditional science and engineering curriculum, in its starkest terms, cultivates the ignorance of scientists and engineers about the social processes that are a part of everyday life. Social attitudes and values are inescapable. The fact that they are sometimes invisible or unspoken to the people who are engaging in them can be problematic because if you can’t see it, you can’t fix it.”

A report released in April of this year by the American Association of University Women (AAUW) found that it is such unseen problems -- stereotypes, gender bias, and the climate of science and engineering departments – that continue to hold women back. The report, titled Why So Few?, stated that college departments that work to integrate women faculty and enhance a sense of community are also more likely to recruit and retain female talent.

“Women can improve their situation, but only by institutional changes can women as a group move forward,” said Virginia Valian, a Distinguished Professor of Psychology at Hunter College and a member of the research advisory committee on the AAUW project. “Women don't negotiate as much as men, but one reason is that they are responded to more negatively than men when they do negotiate. Similarly, women tend not to be as aggressive as men, but they are responded to very negatively when they are aggressive. Only by changing what we reward can women get ahead. It's tempting to suggest fixing the woman, but we need to look at the harder job of fixing the institutions.”

Valian, who also co-directs Hunter's Gender Equity Project, says that if people first recognize that they are all biased to some extent, they can then put into place policies and procedures that will buffer the most negative effects of those biases. On an individual level, it can be as simple as doing a conscious double-check -- like adding a list of numbers bottom-up and top-down to make sure we haven't made an error. Things like giving credibility to a new technician or committee member, verifying that a roster of colloquia speakers represents all of the available talent, or making sure that letters of recommendation do not disadvantage females, can all help.

But changing the system – not just the individual -- takes even more manpower and substantive funding. In 2001, the NSF started offering very large grants for what they called “institutional transformation.” The ADVANCE (Increasing the Participation and Advancement of Women in Academic Science and Engineering Careers) Institutional Transformation awards went to major academic institutions that were willing to make sustainable changes to their culture. Now there are about 40 institutions with such large institutional transformation grants and even more with smaller ones. Many of these programs have been successful, and they are just beginning to be evaluated.

With the support of one multi-million dollar award, Carnes founded WISELI to address gender equity for women scientists at the University of Wisconsin-Madison. The Institute offers a number of workshops to increase the diversity and improve the academic climate, including one that trains members of search committees on how to bring in the most diverse pool of candidates.

“Because there was no other training, the workhop was filling an institutional need to train researchers serving on hiring committees,” said Carnes. “So within the context of that training -- which includes very task-oriented stuff like how to run a meeting and what an open record was -- we also included a session on how unconscious biases against various social groups could play out to undermine your explicit egalitarian goals in hiring.”

A number of measures indicate that their workshops are working. Departments where at least one member participated in at least one hiring workshop went on to hire more women than departments that had not participated. The faculty hired into those participating departments reported being significantly more satisfied with the hiring process. And the participants seemed to appreciate that evidence-based approach of the workshops that relied more on number-crunching than finger-pointing.

But not all programs focused on institutional transformation entail data-driven workshops or PowerPoint presentations. Theater is an unlikely tool being used at the University of Michigan to drive discussions around the themes of gender and power. Jeffrey Steiger, who directs the Center for Research on Learning and Teaching (CRLT) Players at UM, says the benefit of using theater is it can engage people on a different level, drawing them in emotionally to a story or its characters.

The self-described theatrical anthropologist has written a number of sketches – with input from the faculty –portraying scenarios of academic life, from faculty advising, to tenure and promotion, to a search committee. Following each sketch, the audience interacts with the characters, who are played by both professionally trained actors and graduate students or faculty in various disciplines.

“People often walk in skeptical, and personally I don’t blame them,” said Steiger. “But it can actually be helpful when some people don’t relate to the sketch and some people do, because that is when the dialogue can really begin. If they are all from the same department and discover that they have had completely different experiences, they can start talking about the implications of that. And sometimes the aha! moment doesn’t come until months after the sketch, when participants finds themselves observing the exact same biased behavior in a meeting that they had seen portrayed on stage.”

Toward Equal Footing?

Though Ana Mari Cauce, dean of arts and sciences at the University of Washington, tries to remain alert to potentially biased behaviors, she hasn’t spent a lot of time worrying about whether she personally has been at a disadvantage. She does, however, admit that certain biases may affect the way people view her. “I am Latina, I am lesbian, and I am a woman, so in some ways I feel like those three sets of prejudices kind of cancel each other out, because folks have no idea what to expect,” said Cauce.

Cauce is in charge of UW’s Center for Institutional Change, which runs a number of workshops and programs aimed at creating a good academic environment for women. She says that the faculty were skeptical of their work at first, but quickly realized that being seen as a friendly place for women scientists gave their institution a competitive advantage.

“I am a psychologist, so I am apt to say that faculty members are good rats -- they tap the lever that delivers the pellets,” said Cauce. “And I really think that as administrators we have at least some – not total – but some control over the reward structure, and I think the way that you change the culture and change the behavior is by rewarding people who promote gender equity.”

Women’s representation at UW is among the best in the country, and it continues to increase. Between 2001 and 2007, the university saw a 28 percent increase in the number of tenured or tenure track faculty and an 18 percent increase in women full professors in their ADVANCE departments. Cauce prefers to measure success one scientist at a time, and is particularly proud of how she lured a new mother of twins, a computer scientist named Yoky Matsuoka, to UW by helping her think through day care issues. Since joining the university, Matsuoka has had another child and been named a MacArthur fellow.

Equity, in and of itself, may not be a particularly strong motivating factor. But when equitable behaviors result in more talent staying in the field, which in turn result in more discoveries being made, it can be self-reinforcing. So when will we know that true gender equity has been reached, if it is even attainable?

“I think it important to recognize that being on equal footing doesn’t necessarily mean 50-50,” said Cauce. “There are always going to be gender differences, people are going to be attracted to different things and there will be some gender component to it. I also have no doubt that we will get to the point that there will be a good critical mass of women across probably every scientific discipline. But I am not sure that there is some magical 50-50 that once we reach it we will know everything is fine.”

By Marla Vacek Broadfoot

Part one- July 2009

Part two - October 2009
Part three - February 2010

BLOG

Barriers to Women's Advancement in Science

POST A COMMENT (21)

I recently received a copy of an article written in 2007 by Molly Carnes, MD and Judyann Bigby, MD. One of the obstacles to the advancement of women in academic medicine is discussed in terms of the Jennifers vs the Janets. Jennifers refer to the younger women who are just coming out of medical school, who may be junior faculty and are starting their careers with great optimism. Janets are the women who graduated in the 1980s and are at the pinnacles of their careers–experienced, competent, and who have earned the competence for leadership positions.

At first, this sounded like a "cutesy" approach but if you consider that Jennifer is a very popular, hip name today, and Janet a more old-fashioned term, the irony works.

To give you some background on this issue, please look at the earlier blog from a few days ago, Sex, Science and Success.

In the Carnes-Bigby article, the authors discuss how men in academic medicine (referred to as Daves), always refer to the younger generation when talking about how far we have come in advancing women in medicine. The Jennifers seem to be pleased with this picture as they look forward to a rosy future. Rarely, do the Daves talk about the women who are at the peak of their careers but are overlooked for promotions (often given to other Daves). Instead, the 'seasoned' women are appointed to committees and task forces that do little for their personal career trajectory. Perhaps there is an underlining threat to Daves in putting well qualified women into leadership positions. Hmmmm. Kind of reminds me of "trophy" wives (if you are old enough to know that term!)

It's an interesting premise and the article by Carnes and Bigby is provocative.

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Major grant aims at breaking the habit of implicit bias

Oct. 11, 2010 by David Tenenbaum

A University of Wisconsin-Madison doctor who has long worked to increase the entry of women into the scientific workforce has won a grant to develop video games to uncover and neutralize implicit, unintentional biases against women, minorities and people with disabilities.

After years of effort, many fields in science, math, engineering and medicine still have trouble attracting and retaining women and minorities, and all find women underrepresented in leadership, says Molly Carnes, director of the UW-Madison Center for Women's Health Research. She says even people who favor diversity and resist bias may unintentionally act upon implicit bias.

Although women have made major strides in medicine and the social sciences, they lag in engineering and physical sciences, Carnes says, and the fallout affects not just fairness but also economics. "For 25 years, the research agencies have said, if the U.S. is going to maintain its competitive edge in a global economy that is increasingly knowledge-based, we must invest in the domestic workforce in science, math, engineering and medicine. There has been some improvement, but we not taking full advantage of our domestic workforce."

The new grant, called the National Institutes of Health Director's Pathfinder Award to Promote Diversity in the Scientific Workforce, is funded by the American Recovery and Reinvestment Act and administered by the National Institute of General Medical Sciences.

"The Pathfinder Award reflects NIH's long-standing commitment to promoting a scientific workforce that is representative of the diversity of the U.S. population," says NIH director Francis S. Collins. "Such diversity generates new perspectives, approaches and answers to challenging problems. We're optimistic that these awards will help identify new methods for addressing the compelling need to increase the number of people from underrepresented groups who pursue careers in the biomedical, behavioral, clinical and social sciences."

The grant is intended to fund what Carnes, a professor of medicine and engineering, calls "transformational approaches" that can change attitudes, beliefs and behaviors in academic institutions.

In her studies of implicit bias, Carnes says she focuses on faculty, who "are the driver of change in an academic institution." She says she "approaches implicit bias in decision-making as a bad habit that can be changed with practice."

The three-year, $2 million grant will fund several researchers and students to work with Carnes and collaborators to develop an interactive video game that will place faculty in situations where they can recognize the self-defeating nature of implicit bias. For example, a faculty member

might be asked to compete to hire a top scientist with another university and to schedule an accessible campus visit to Madison for the candidate, who needs a wheelchair.

An effective video game "has to involve challenge and invoke curiosity, has to give enough information but not too much," Carnes says. UW-Madison, she says, "has faculty who are preeminent in game-based learning and in the study of implicit bias. And because the campus is so big, with almost 1,500 faculty in science, math, medicine and technology, and more than 500 students obtaining graduate degrees in these disciplines every year, it makes a wonderful living laboratory for this work."

Working with the Games and Simulation for Learning group on campus, Carnes and colleagues are examining existing games for elements that would engage faculty in a game that involves authentic situations with meaningful outcomes. After the game is distributed across campus, Carnes and her colleagues will look for results in an all-faculty survey planned for 2013, which will enable a comparison of attitudes between people have played the game and those who have not.

The ultimate test, Carnes says, "is a change in hiring practices and faculty retention on campus. Based on our previous work, we are optimistic that this work can increase the diversity of the faculty at UW-Madison."

UW researcher gets grant to study faculty bias

By Anna Asendorf
Monday, October 11, 2010 7:57 p.m.
Updated Tuesday, October 12, 2010 2:33:16 a.m.

A $2 million grant to fund the development of a video game to examine and correct implicit biases in faculty members will continue the University of Wisconsin's focus on increasing faculty diversity for the next three years.

Over the next three years grant recipient Molly Carnes, physician in the UW School of Medicine and Public Health, will work with members from the Games, Learning and Society group to develop video games that cause faculty members who play them to recognize their biases against women, minorities and people with disabilities.

In recognizing these implicit biases, the goal of the video games is for faculty members to then change these attitudes and behaviors, translating the lesson from the game into their own lives, Carnes said.

"We all have assumptions. The fact that we have these biases isn't bad," she said. "The problem is when biases have real consequences."

To engage faculty, the video games need to provide challenges and motivation to become a more effective teacher, Carnes added.

For example, a faculty member could play a video game in which they assume the role of an Asian woman and experience how students behave towards them.

Experiences like these could allow the player to examine their own biases and see how these biases could prevent a diverse faculty when recruiting, she said.

When Carnes first thought about using video games, she said she found out the best researchers in game-based learning work at UW, which motivated the partnership between Carnes and the Games, Learning and Society group.

"This could only happen at UW," Carnes added.

As part of a broader scope, the research focuses on creating more diverse faculty workforces in STEMM areas — which include the areas of science, technology, engineering, mathematics and medicine — and is funded by a grant from the National Institutes of Health Director's Pathfinder Award to Promote Diversity in the Scientific Workforce.

Carnes and her colleagues have worked for greater diversity in the STEMM areas for about 10 years, Carnes said.

"If you want to change the culture of an institution you have to change the attitudes and behaviors in the institutions that drive the change," Carnes said. "That's the faculty."

Carnes' work coincides with other faculty diversification efforts led by Vice Provost for Diversity and Climate Damon Williams aimed at the recruitment of diverse, talented faculty members to UW.

Along with Vice Provost for Faculty and Staff Steve Stern, Williams said his office is focusing on developing leadership and training workshops for search committees that recruit new

faculty, which would include education on biases when hiring.

Williams said research like Carnes' keep efforts for increased diversity at UW moving forward.

In 2013, both Carnes and Williams hope to see the effects of their efforts. An April 2010 baseline survey on diversity in different UW departments will provide a backdrop of comparison for another survey conducted when the grant ends, Carnes said.

While the research is in the preliminary stages, in the end Carnes said she envisions the video games being used as a tool in workshops for different disciplines, among other things. A patent is also possible.

Have a thought? We welcome your input, but please try to keep it polite and on topic wherever possible. Your comment may be deleted if it is inappropriately off topic or promotional or if it is unnecessarily rude or contains personal attacks. We may delete comments for other reasons as well. Just keep it simple and focus on your points as respectfully as possible.

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News

$2 Million Grant To Develop Game That Breaks Bias Against Women In Sciences

by Simon Parkin

46 comments

October 13, 2010

A $2 million grant from the National Institute of Health is to fund the develop a video game that aims to break assumptions that keep women and minorities from the sciences.

The game will be developed by researchers and students in conjunction with Molly Carnes, director of the University of Wisconsin-Madison Center for Women's Health Research with the aim of combating implicit, subconscious bias against women and minorities.

"After years of effort, many fields in science, math, engineering and medicine still have trouble attracting and retaining women and minorities, and all find women underrepresented in leadership," said Carnes.

"For 25 years, the research agencies have said, if the U.S. is going to maintain its competitive edge in a global economy that is increasingly knowledge-based, we must invest in the domestic workforce in science, math, engineering and medicine," she continued. "There has been some improvement, but we not taking full advantage of our domestic workforce."

Carnes believes that the reason for this lies in our subconscious. "There are multiple studies showing that it's these implicit biases that predict our behavior more than our explicit beliefs."

The game will aim to put players in situations that could reveal such bias. For instance a faculty member might be asked by the game to hire a top scientist who requires wheelchair accessibility. Or a resume might have a work experience gap because of child-rearing, with the game asking players to consider their knee-jerk response to such situations.

Carnes argues that bias is like a bad habit in that people want to change but find it a struggle. "If it was easy to get people to change a habit nobody would be smoking" she said. "So we know that giving people information is not enough and we know that the way we are delivering diversity messages to faculty now is not working."

She hopes the game will "involve challenge and invoke curiosity, [and] give enough information, but not too much."

The new grant, called the National Institutes of Health Director's Pathfinder Award to Promote Diversity in the Scientific Workforce, is funded by the American Recovery and Reinvestment Act and administered by the National Institute of General Medical Sciences.

Science Careers From the journal Science

http://sciencecareers.sciencemag.org

MySciNet

Reducing the Impact of Negative Stereotypes on the Careers of Minority and Women Scientists

Social science research powerfully demonstrates how stereotypes, even those that people are not consciously aware of, can influence the careers of women and minorities. For example, people **rate the quality of a scientific paper differently (http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6VJ1-4R05HXW-2&_user=10&_coverDate=01%2F31%2F2008&_rdoc=1&_fmt=high&_orig=search&_origin=search&_sort=d&_docanchor=&view=c&_searchStrId=1551565198&_rerunOrigin=scholar.google&_acct=C000050221&_version=1&_urlVersion=0&_userid=10&md5=8973aace36711b430738a9dab79896f2&searchtype=a)** depending on whether they think a man or a woman wrote it. Stereotypes also reduce the self-esteem, motivation, and intellectual performance of women and minorities through a process called stereotype threat. Stereotype threat reduces performance in situations where an individual might confirm a negative stereotype about his or her group. In one example, researchers found that African-American college students **performed worse (http://cat.inist.fr/?aModele=afficheN&cpsidt=2898216)** on an SAT test when the students had been told that the test is a valid measure of intelligence.

Learning more about the science of stereotypes can also help women and minorities prevent stereotypes from interfering with intellectual performance.

Such findings suggest that negative stereotypes pose a serious career obstacle for women and minority scientists. In 2006, the National Academy of Sciences released the report **Beyond Bias and Barriers (http://www.nap.edu/catalog.php?record_id=11741)** : *Fulfilling the Potential of Women in Academic Science and Engineering*, which recommended that scientific institutions adopt interventions that combat stereotypes. **See this box (#box)** for recommendations on what institutions can do.

But the focus of this article is on individual scientists: What can they do to prevent stereotypes from stifling their career advancement? The advice this article offers is derived from my experiences as a social psychologist working in the **Office of Diversity and Leadership (http://med.stanford.edu/diversity/)** at Stanford University School of Medicine. Individual scientists can take at least three steps to buffer themselves against negative stereotypes: educating themselves and others about the science of stereotypes, adopting a growth mindset, and expanding their professional networks.

Recommendations for Institutions on Reducing the Impact of Negative Stereotypes

1. Demonstrate institutional commitment to diversity through strategic plans, mission statements, and other communication to employees.

2. Educate organizational leaders on how stereotypes, especially those that are unconscious, affect hiring and evaluation

decisions.

3. Consider educating all employees about how stereotypes affect decisions.

4. Diversify the members of all hiring committees.

5. Make efforts to diversify candidate hiring pools in order to avoid creating "tokens."

6. Create ground rules for hiring discussions, including keeping job criteria front and center and focusing on evidence rather than opinions.

7. Appoint at least one senior leader who is responsible for monitoring institutional fairness.

8. Although numbers are important, focus equally on creating an inclusive organizational culture that supports diversity.

9. Help build and support professional networks that connect scientists of different backgrounds and ages.

10. Develop leadership-development programs for scientists that incorporate diversity training.

Educate yourself and others about the science of stereotypes

Daisy Grewal (Credit: Steve Gladfelter, Stanford University)

One simple-yet-effective way to combat stereotypes is to raise awareness of how stereotypes affect decision-making. Making people more aware of these processes helps them -- and you -- self-correct and thereby reduce the negative effects of stereotypes on decisions. Educating others can be as simple as presenting them with the social science research that demonstrates how, why, and when stereotypes are most likely to influence evaluation decisions.

When talking to others about stereotypes, it is important to emphasize that stereotypes are often not under our conscious control. Emphasizing this fact will reduce feelings of defensiveness. Scientists have been able to measure our unconscious stereotypes through a computer task called the Implicit Association Test (IAT). You may want to take the IAT at the Web site **Project Implicit (https://implicit.harvard.edu/implicit/)** and encourage others to do the same. Most people find their results on the IAT surprising. Because stereotypes originate from the societies we live in, we all hold them to some degree.

Evidence is growing that educating people about stereotypes helps foster diversity in science. At least two studies -- one at the **University of Michigan, Ann Arbor (http://www.begellhouse.com/journals /00551c876cc2f027,19348ef76738fd61,478bbf963646ac5e.html)** , and the other at the **University of Wisconsin, Madison (http://journals.lww.com/academicmedicine/Abstract/2010/06000 /Searching_for_Excellence___Diversity__Increasing.24.aspx)** -- have shown that educating science faculty members about stereotypes leads to improvement in the rates at which women are hired onto faculties. Faculty attendance at training events also correlated with better hiring experiences for faculty recruits, especially women.

So, while it's a good idea to try to raise awareness, stereotypes are a touchy subject. An alternative to forcing people into a difficult conversation is to direct them toward resources from credible national organizations. For example, the Association of American Medical Colleges offers a **free e-learning seminar (https://www.aamc.org/initiatives/opi/leadership/52192/seminar/)** titled "What You Don't Know: The Science of Unconscious Bias and What To Do About it in the Search and Recruitment Process."

Learning more about the science of stereotypes can also help women and minorities prevent stereotypes from interfering with their intellectual performance. In one study, researchers taught women college students about stereotype threat and how it affects performance. Those women **did just as well as men (http://pss.sagepub.com/content/16/3/175.abstract)** on a subsequent math test. These results suggest that simply informing stereotyped groups about how stereotype threat works can diffuse its power.

Grow your mindset

Stanford University psychology professor **Carol Dweck has found (http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6X01-46NXHPX-H&_user=10&_coverDate=06%2F30%2F1998&_rdoc=1&_fmt=high&_orig=search&_origin=search&_sort=d&_docanchor=&view=c&_searchStrId=1551586655&_rerunOrigin=google&_acct=C000050221&_version=1&_urlVersion=0&_userid=10&md5=10c572ec540866392a05456224bced3d&searchtype=a)** that our views of human nature influence our likelihood of stereotyping others. People with a "fixed" mindset view human abilities as stable and difficult to change; consequently, they are more likely to use stereotypes to describe themselves and others. In contrast, people who have a "growth" mindset view human abilities as malleable through sustained effort. They are less likely to stereotype themselves or others.

Research has shown that a fixed or growth mindset can have powerful effects on people's behavior, especially people who belong to stereotyped groups. For example, African-American students with a fixed mindset **are less likely to incorporate constructive criticism (http://www.citeulike.org/user/brianh/article/2237132)** when trying to improve their intellectual work. Among women taking an advanced math class, those with fixed mindsets felt more anxious during the class and didn't **perform as well (http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6W52-4R94CH6-1&_user=10&_coverDate=02%2F29%2F2008&_rdoc=1&_fmt=high&_orig=search&_origin=search&_sort=d&_docanchor=&view=c&_acct=C000050221&_version=1&_urlVersion=0&_userid=10&md5=ad506436e67696d280a1c189cf4b66fd&searchtype=a)** . In contrast, the women with growth mindsets felt more comfortable and confident in their abilities and performed better. Importantly, the women with the growth mindsets were just as aware of negative stereotypes about women in math, but their mindsets gave them a resilience that helped them overcome those stereotypes.

People with growth mindsets are less likely to become discouraged after making mistakes and more likely to view difficult situations as challenges rather than threats. Adopting a growth mindset can benefit everyone, but it might be especially important for those who belong to stereotyped groups.

You might think there is little you can do to change your mindset, especially if your mindset is fixed. Dweck, however, has been able to change people's mindsets in experimental settings. She suggests four steps:

-Pay attention to what you are telling yourself.

-Recognize that you have a choice.

-Talk back to your fixed mindset "voice."

-Accept challenges and interpret the results within a growth mindset.

For a more in-depth look at these four steps, visit Dweck's **Web site (http://mindsetonline.com/changeyourmindset/firststeps/index.html)** .

Expand your professional networks

An unfortunate byproduct of stereotypes is that they often make people feel like they don't belong, which can exert powerful effects on people's career choices. For example, research shows that women who feel like they don't belong in computer science **are less likely to want to pursue a career in it (http://www.ncbi.nlm.nih.gov/pubmed/19968418)** , even if their aptitude for computer science is high. Women and minority scientists are at a higher risk of feeling like they don't belong or fit in with their colleagues. Feelings of belonging directly influence people's motivation and satisfaction with a scientific career and can predict whether they stay at an institution.

If your institution provides opportunities for networking with colleagues, you should attend. Networks serve many purposes, including mentoring, access to information, and professional and personal support. If you don't have an official networking program, develop your own, unofficial one. Make an effort to keep in contact with colleagues who support you and your career. Talking with experienced scientists, who have weathered challenges in the past, can help women and minorities interpret difficulties less personally, improving their resiliency. In experimental settings, researchers have found that increasing feelings of belonging **provides a buffer (http://www.sciencedirect.com/science?_ob=ArticleURL&_udi=B6X01-4N1J0P5-7&_user=10&_coverDate=01%2F31%2F2007&_rdoc=1&_fmt=high&_orig=search&_origin=search&_sort=d&_docanchor=&view=c&_acct=C000050221&_version=1&_urlVersion=0&_userid=10&md5=452fb96a48019c77eaf9911a17e9c476&searchtype=a)** against negative stereotypes and reduces the drop in performance caused by stereotype threat.

The world would be far better place if women and minorities did not have to deal with negative stereotypes in the first place. History and society have placed the burden of negative stereotypes unfairly on women and members of minority groups. By providing early-career researchers with strategies that can help them deal with stereotypes, we are by no means absolving institutions of their responsibility to confront and try to change negative stereotypes. Universities and other scientific organizations have an obligation to do this, and their contributions -- like the contributions of individual scientists -- are necessary if we are to avoid losing out on critical

sources of scientific talent.

Photo:*(top)* **Dan McKay (http://www.flickr.com/photos/mukluk/440494350/)** on Flickr (Creative Commons Attribution License)

Daisy Grewal is a research scientist in the Office of Diversity and Leadership at the Stanford University Medical School. She studies the effectiveness of different types of interventions on improving the recruitment and retention of women and minority scientists.

10.1126/science.caredit.a1000113

Cancel

WISELI Products and Resources:

Fine, Eve and Jo Handelsman. 2010. "Benefits and Challenges of Diversity."

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Sheridan, Jennifer; Eve Fine; and Jo Handelsman. 2010. “Fostering Success for Women in Science & Engineering: Advice for Departmental Faculty.”

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Sheridan, Jennifer; Christine Maidl Pribbenow; Molly Carnes; and Amy Wendt. January 2010. "Study of Faculty Worklife at the University of Wisconsin-Madison, 2010." Climate survey instruments.

WISELI Research/Evaluation Report:

Pribbenow, Christine Maidl and Jennifer Sheridan. April 10, 2010. "Evaluation of the Vilas Life Cycle Professorship Program.

Evaluation of the Vilas Life Cycle Professorship Program

Christine Maidl Pribbenow and Jennifer Sheridan
April 10, 2010

This report details the administrative process and outcomes for the Vilas Life Cycle Professorship (VLCP) program and recipients at the University of Wisconsin-Madison, funded by the Estate of William F. Vilas. The report is presented to the Vilas Trustees and the Office of the Provost in three sections:

Section I: Administrative details of the program for current year.

Section II: Experiences and outcomes of VLCP recipient from previous year.

Section III: Progress and highlights of recipient's scholarship and productivity.[1]

Section I: Administrative Details

The Vilas Life Cycle Professorship (VLCP) program is administered by the Women in Science & Engineering Leadership Institute (WISELI), as authorized by the Office of the Provost and with Vilas Trust support from 2005 to 2009. In 2009/10, the Vilas Trustees were unable to fund this program. The Vice Chancellor for Administration agreed to fund the remainder of awards from 2008/09 that would have been funded by the Vilas Trust if there had been a 2009/10 allocation (for a total of $96,995). WISELI was able to continue implementing the program and make new awards in 2009/10 because (1) the Graduate School was able to fund a very limited number of especially critical proposals, and (2) WISELI had some gift funds that could be used for an award. All faculty and permanent principal investigators, regardless of divisional affiliation, are eligible for these funds. In anticipation of future Vilas funding as the economy improves, the name of the program remained the same, as well as the conditions of the awards: per the stipulations of the Estate, no Vilas funds are to be used for the recipient's salary and individual awards are not to exceed $30,000. In addition, all applicants selected by the Review Panel are vetted with the Office of the Provost prior to establishing an award in order to ensure that each recipient is in good standing with the University.

Review Panel

WISELI has enlisted the following faculty/staff to read applications and make funding decisions:

- **Jennifer Sheridan**. An associate scientist and a sociologist by training, Dr. Sheridan represents the Social Studies Division. Dr. Sheridan has administered the original Life Cycle Research Grant (LCRG) program since its inception in 2002, as well as serving on the VCLP panel since the Vilas Trust began funding the awards in 2005.
- **Amy Wendt**. A professor in the Department of Electrical and Computer Engineering, Dr. Wendt represents the Physical Sciences Division. Dr. Wendt has served on the review panel of the former LCRG program since its inception.
- **Jane Zuengler**. Dr. Zuengler is a professor of English, and represents the Arts & Humanities Division. Dr. Zuengler replaced Dr. Cecilia Ford on the review panel in 2007.

[1] To maintain anonymity, the public will have access to Sections I and II only.

- **Nancy Mathews**. Dr. Mathews is a Professor in the Gaylord Nelson Institute for Environmental Studies, and represents the Biological Sciences Division. Dr. Mathews is a former recipient of the original LCRG program.

Applicants and Awards

Because flexibility is of utmost importance to faculty who are experiencing life crises, we established three deadlines for applications for the VLCP program for 2009/10.

- **Round 1.** Deadline May 29, 2009. Applications received: 4. Total amount requested: $113,075. Applications funded: 2 (Graduate School). Total amount awarded: $56,904.
- **Round 2.** Deadline October 9, 2009. Applications received: 4. Total amount requested: $100,845. Applications funded: 1 (Graduate School). Total amount awarded: $29,156.
- **Round 3.** Deadline January 1, 2010. Applications received: 7 (one applicant re-applied after being declined in Round 1). Total amount requested: $181,157. Applications funded: 3 (Graduate School, Recipient Department, and WISELI). Total amount awarded: $76,485.

- **SUMMARY, 2009/10:** Applications received: 15. Total amount requested: $395,077. Applications funded: 7. Total amount awarded: $162,545.

Recipient Demographics

Demographically, Vilas Life Cycle Professorship applicants are very diverse:

	Applicants	Recipients[2]
Gender		
Female	11	7
Male	3	0
Race/Ethnicity[3]		
Faculty of Color	4	0
Majority Faculty	10	7
Title		
Assistant Professor	5	2
Associate Professor	5	1
Professor	3	3
Permanent PI/Academic Staff	1	1

[2] One recipient applied twice, and is only included once in this table.

[3] Faculty of Color are those whose "heritage code" is listed as Black, Asian, Native American, or Hispanic in University records. Majority Faculty are listed as "Other."

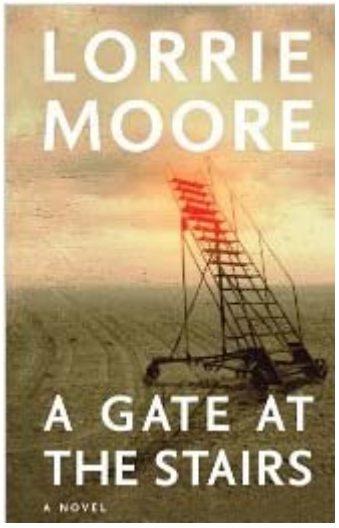
Division		
Biological Sciences	6	2
Physical Sciences	1	1
Social Studies	2	1
Arts & Humanities	5	3

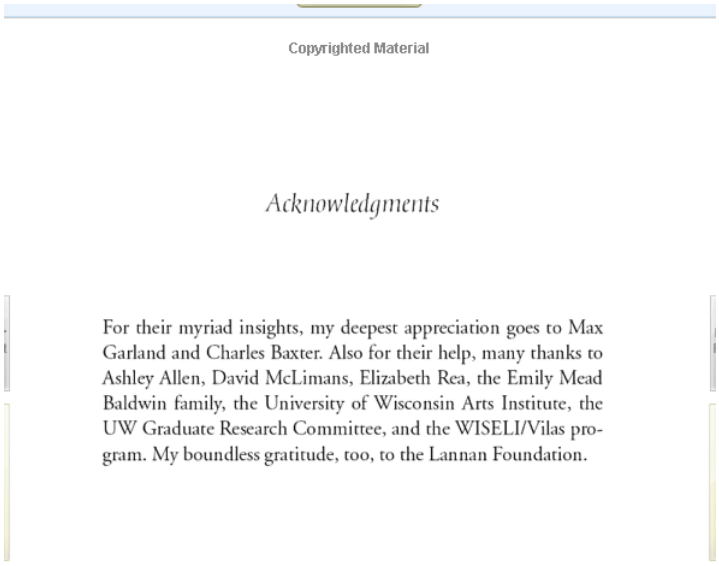
Issues Arising in 2009/10

Because of the limited funding for 2009/10, the selection committee only pursued funding for the most critical of applications; there were several applications we would have liked to have funded but were unable to. For the few cases we selected, the Graduate School was able to offer some critical awards this 2009/10 year; however, it is unlikely that they will be able to continue this practice because the Vilas Life Cycle Professorship program and the WARF funding provided by the Graduate School do not have perfectly aligned goals. Likewise, WISELI used all of the discretionary funds we had available towards this program in 2009/10 and has no more extra funds to use towards a Life Cycle grant. Resumption of Vilas Trust funding for 2010/11 will allow us to keep this program going. The need has clearly not diminished; we received more fundable applications than we were able to accommodate in 2009/10, and have already received five inquiries from faculty in 2010, hoping to apply this spring.

Credit Given to the VLCP Program

UW-Madison faculty member and nationally-acclaimed writer Lorrie Moore was a previous recipient of the Vilas Life Cycle Professorship program. Her new book, *A Gate at the Stairs*, was released in September, 2009. In the acknowledgements section, Prof. Moore thanks the "WISELI/Vilas program," referring to the Vilas Life Cycle Professorship program administered by WISELI.





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Acknowledgments

For their myriad insights, my deepest appreciation goes to Max Garland and Charles Baxter. Also for their help, many thanks to Ashley Allen, David McLimans, Elizabeth Rea, the Emily Mead Baldwin family, the University of Wisconsin Arts Institute, the UW Graduate Research Committee, and the WISELI/Vilas program. My boundless gratitude, too, to the Lannan Foundation.

Section II: Recipient Outcomes and Experiences

Similar to previous years' recipients, the VLCP grantees expressed gratitude for the funds that this program provided them. They acknowledged that the funds provided them the means to remain productive in their research and in their ongoing roles as faculty and staff at UW-Madison.

All of the recipients who participated in the evaluation of the 2008/09 VLCP funding cycle (*n*=11) identified their own or a family member's illness as the primary reason for applying for the funds. Besides the diagnoses or life-threatening illnesses described, the grantees were also in the midst of a critical juncture in their career—at the very beginning, in which tenure was at issue, or in the middle or later stages, where maintaining a lab and/or their position was at stake. For all, the funds were necessary to establish and/or maintain their careers.

How the Funds Were Used

The majority of the participants (approximately 90%) used the funds to either hire or retain current personnel to help them with their research. This was especially the case for the faculty and staff in the sciences. The recipients from social sciences and the humanities noted that they used the money to support their scholarship, such as editing a book, conducting literature reviews or transcribing, and not necessarily to hire people to replace or perform work that they themselves were unable to do.

Differences in the use of the funds were also seen between academic staff and faculty. For example, academic staff who rely on "soft" or grant money to maintain their positions hoped they could use the funds for salary, because "the academic staff side is different from…the faculty arena." One grantee suggested that staff should not be "subject to this particular constraint" because she is paid differently from her faculty peers. Despite this concern, the funds helped her to "increase [her] reputation and skills… and attract other dollars that kept [her] research going."

The VLCP Serves to Retain and Support Personnel

One-third of the recipients reported that they were at risk of leaving the UW and would have done so had they not received the VLCP grant. The other recipients, although not planning to leave, did acknowledge that their professional futures were at risk due to their life event. One recipient did leave the UW, and noted that he did so for an "advancement opportunity," which was unrelated to the VLCP.

At least ten other people were affected by this current funding cycle of grants. This mix of graduate students, academic staff and post doctoral researchers were hired or retained to perform the work that the recipients needed help with or were physically unable to do. Consequently, these personnel became the "unintended," yet additional beneficiaries. Comments related to this "value added" outcome include:

> *I am not sure at all how it is perceived by my colleagues, or even how much they are aware of it, but they were happy that we could fund a very deserving graduate student.*

My research assistant was VERY grateful not only for the payment, but also for the health insurance.

[The grant] permitted me to continue funding some of my research team staff. It kept them involved and enhanced their skills, thereby strengthening the team as a whole.

The grant allowed me to keep employment of my lab manager, who helped me run the lab and allowed me to focus on writing grants.

The grant supported the research of a graduate student working with me, who won a funded post-doc position to continue working on the data.

The grant enabled me to hire a research assistant and resurrect my research program. Without the funds, it would have taken me many more years to rekindle my research and gain the funds to support it. Given my age and career stage, I fear that I would have been unable to ever regain my former scholarly momentum.

For junior faculty, the grant supported burgeoning careers, ones which had barely started before being sidetracked by illnesses. An example:

The Vilas grant was invaluable because it allowed me to hire an individual who was able to keep my research program moving during my absence. This continued progress was essential because now I am in the process of renewing a major grant; without the Vilas support, there would not have been adequate progress to make my renewal application competitive. Moreover, I am soon to be reviewed for tenure. Without Vilas support, my packet would not have had enough progress to be competitive. There is a good change that without a feasible tenure packet, I would have lost my job.

View of the VLCP Program

Overall, the VLCP program is viewed very positively. Most of the recipients shared the receipt of this grant with their colleagues, while others kept it confidential due to the sensitive nature of theirs or their family members' illnesses. At the same time, they raved about its effects while completing their evaluation form:

For this senior faculty member, this program was a godsend. There is nothing comparable to it on campus. For a relatively small investment, I believe the payoff to my career trajectory and productivity has been substantial.

This program is huge. It is actually a humanist commitment to faculty life.

When asked where the program falls in terms of its value on campus, two of the recipients noted:

The program occupies a unique niche because it is the only one (to my knowledge) that specifically addresses unexpected adverse life events that can (and do) impede a faculty member's progress. It is absolutely essential for the many faculty who have significant responsibilities outside of their research programs.

> *It is extremely valuable for those in need in terms of acknowledging faculty needs outside the box (e.g., emotional needs, practical needs involving family). It makes an attempt to legitimatize these things in an environment where any weakness is seen as potentially damaging.*

Similar to previous years' recipients, they thanked "the UW" and attributed this program to the administration.

> *The highest value. It is critical to support faculty during crisis. They will return the loyalty tenfold.*

> *The life event took the wind out of my sails so to speak and the funds helped me to feel a bit more valued by UW.*

As seen in the next section, the faculty and staff members who received the grants were able to continue their research programs and many applied for and received continued funding from other sources. They also completed books, publications, and other forms of scholarship consistent to their fields of study.

Section III: Research Progress and Scholarship Highlights

Section III has been removed to protect the confidentiality of the VLCP recipients.

WISELI Research/Evaluation Report:

Kerr, Bradley, Jessica Winchell, and Christine Pribbenow. October 11, 2010. "WISELI's Celebrating Women in Science & Engineering Grant Program: Evaluation Report, 2002-2009."

WISELI's Celebrating Women in Science & Engineering **Grant Program: Evaluation Report, 2002-2009**

Bradley Kerr, Jessica Winchell and Christine Pribbenow
WISELI Evaluation Staff
October 11, 2010

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Contents

Background

In the original proposal to the National Science Foundation, the authors of UW-Madison's Women in Science and Engineering Leadership Institute (WISELI)[1] identified the ***Celebrating Women in Science and Engineering Seminar Series*** as one of the new initiatives to "increase the representation and advancement of women in academic science and engineering careers, thereby contributing to the development of a more diverse science and engineering workforce."[2] This new initiative was described as the following:

> *Outstanding women scientists will be hosted each semester of the granting period (a total of 10 series). Funds for these have been contributed by the six deans who are administrative partners in the Institutional Transformation initiative. When these women scientists are at UW-Madison, WISELI will sponsor trans-departmental receptions, and schedule special sessions with graduate students and postdoctoral fellows. (p.13)*

To implement this series, WISELI PIs and staff developed a grant program in 2002. The ***Celebrating Women in Science & Engineering Grant Program*** provides funding to departments, centers, or student groups wishing to create new workshops, symposia, lecture series, or similar events in line with the goals of WISELI: to promote participation and advancement of women in science and engineering. Applicants may use funds to invite a prominent woman in science or engineering to present her work at a departmental seminar, invite an officer from a major funding agency to discuss the importance of diversity issues to the agency, create a special one-day symposium to educate a department/center on the issues of women in science and engineering, or similar event.

Grant Implementation

WISELI staff members solicit applications for the grant program through the WISELI website, listserv and e-mail announcements to deans and department chairs in the natural and physical sciences, and through word-of-mouth. WISELI expects that invited speakers will promote the advancement of women in science and engineering by contributing to the scientific discourse in various departments, increasing the visibility of women in science and engineering, and serving as role models and potential mentors for female students. The program also encourages departments to routinely include women among its seminar/colloquium speakers. Applications are vetted by a team of reviewers and evaluated on the basis of their congruence with WISELI's goals for this program. Recipients are required to submit evaluations of the effectiveness of their speaker in advancing WISELI's goals (see Appendix A for post-event evaluation form).

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[1] NSF SBE – 0123666, $4.75 million provided from January 1, 2002 to December 31, 2006; the ADVANCE Program is subtitled "Increasing the Participation and Advancement of Women in Academic Science and Engineering Careers."

[2] NSF-ADVANCE program proposal solicitation.

WISELI awarded a total of 45 grants between 2002 and 2009, although not all were used at this point. Grants were awarded to a number of departments in the biological sciences, physical sciences, and engineering. Grants were also awarded to the Graduate Women in Science student organization and the Committee on Women in the University and the Women Faculty Mentoring Program (jointly). Thus, the awardees spanned various science and engineering fields and cross-college organizations (see Table 1).

Biological Sciences	Engineering	Physical Sciences	Other
◦ Comparative Biosciences ◦ Dairy Science ◦ Forest Ecology & Management ◦ Medical Microbiology & Immunology ◦ Neuroscience ◦ Nutritional Sciences ◦ Population Health Sciences	◦ Biomedical ◦ Chemical & Biological ◦ Civil & Environmental ◦ Engineering Learning Center ◦ Society of Women Engineers	◦ Atmospheric & Oceanic Sciences ◦ Chemistry ◦ Computer Sciences ◦ Physics ◦ Statistics ◦ Women in Computer Science	◦ Graduate Women in Science ◦ Committee on Women in the University & the Women Faculty Mentoring Program

Table 1: Distribution of "Celebrating Women" Grants across UW-Madison's Colleges

The majority of the grants were awarded to faculty, staff and students in Letters and Science (42%), followed by Engineering (18%) and CALS (16%). In total, $66,411 in grants were awarded, with $59,494 (90%) actually spent (see Table 2).

School or College	Number of Grants	Grant $ Awarded	Grant $ Used	Department	**Applicant**
Medicine and Public Health	5	$2100	$2100	Medical Microbiology & Immunology	Assistant professor
		$1500	$1500	Medical Microbiology & Immunology	Assistant professor
		$1500	$1500	Population Health Sciences Student Organization	Graduate Student
		$1000	$1000	Medical Scientist Training Program	Medical Scientist Training Program Student
		$600	$600	Center for Women's Health Research	Professor
		$6700	**$6700**		
Veterinary Medicine	2	$1400	$1400	Comparative Biosciences	Professor
		$1100	$1100	Comparative Biosciences	Professor/Chair

School or College	Number of Grants	Grant $ Awarded	Grant $ Used	Department	**Applicant**
		$2500	**$2500**		
Agricultural and Life Sciences	7	$550	$399	Dairy Sciences	Professor
		$700	$656	Nutritional Sciences	Professor
		$2000	$2000	Forest Ecology and Management	Assistant Scientist
		$1587	$1087	Forest Ecology and Management	Associate Professor
		$1500	$1500	Genetics	Graduate Student
		$1000	$1000	Genetics, Evolution Initiative	Assistant Administrator
		$3000	$3000	Horticulture	Assistant Professor
		$10,337	**$9642**		
Pharmacy	1	$2000	$0	Pharmacy	Assistant Professor
		$2000	**$0**		
Letters and Science	19	$1500	$1500	Statistics	Professor/Chair
		$2000	$2000	Computer Sciences	Assistant Professor
		$1000	$0	Physics	Professor
		$2600	$2600	Atmospheric & Oceanic Sciences	Assistant Professor
		$1200	$1200	Chemistry	Graduate Student
		$2720	$2720	WICS & SWEGA	Research Assistant
		$1300	$1300	Graduate Women in Chemistry	Graduate Student
		$3000	$3000	WACM	Research Assistant
		$1000	$1000	Entomology	Graduate Student
		$2000	$2000	Astronomy	Graduate Student
		$1000	$1000	Mathematics	Graduate Student
		$2000	$2000	Physics, Phenomenology Institute	Graduate Student
		$1000	$1000	Statistics	Professor
		$1500	$1500	Physics, Phenomenology Institute	Graduate Student
		$1000	$1000	Mathematics	Professor
		$800	$800	History of Science	Assistant Professor
		$1000	$1000	Physics	Assistant Professor
		$1740	$1740	Mathematics	Graduate Student
		$2087	$2087	Astronomy	Graduate Student
		$30,447	**$29,447**		
Engineering	8	$700	$490	Civil and Environmental Engineering	Assistant Professor
		$1500	0	Biomedical Engineering	Professor
		$2000	$2000	Chemical and Biological Engineering	Professor

School or College	Number of Grants	Grant $ Awarded	Grant $ Used	Department	**Applicant**
		$3000	$2000	Biomedical Engineering	Graduate Student
		$200	$200	Engineering Learning Center	Director
		$1500	$1500	Biomedical Engineering	Graduate Student
		$1126	$1126	Society of Women Engineers	Research Assistant
		$150	$150	Society of Women Engineers	Research Assistant
		$10,176	**$7466**		
University Wide	3	$2538	$2538	Committee on Women	
		$1000	$488	Graduate Women in Science	Research Assistant
		$713	$713	Women Faculty Mentoring Program	
		$4251	**$3739**		

Table 2: Distribution of Number of Grants, Funds Awarded and Used, Department and Applicant by UW-Madison's Colleges and Schools

In general, award recipients typically used the WISELI grant to bring prominent women scientists to the UW-Madison campus. Most speakers gave research presentations, participated in question and answer sessions, and attended small-group luncheons or dinners. Some also lectured to one or more classes, met with student organizations, held one-on-one meetings with graduate students, faculty members, or post-doctoral students, or attended small-group discussions. The schedule of activities for one Celebrating Women in Science & Engineering Grant speaker is included to illustrate a "typical" visit (see Appendix B).

Summary of Grantee Evaluations

A formative review of this grant program was conducted in 2004.[3] For this review, evaluations completed post-event by each of the awardees were analyzed and categorized thematically. Results from this review indicate that the program was indeed meeting its intended audience and was having positive effects on its grantees and program participants.

Audience

The various activities that visitors participated in were intended to reach a variety of audiences on the UW-Madison campus. For example, research presentations were open to a wide range of interested persons, while dinner meetings often encouraged networking between women scientists by limiting attendance to women graduate students and faculty members, or focused on research by including only those with shared research interests. WISELI intended that each of these activities would serve the broad goals of the grant program.

[3] Winchell, J. (October 2004). *Celebrating Women in Science & Engineering Grant Program, 2002-2004.* Madison, WI: WISELI Evaluation Report.

Attendance numbers for sponsored speakers' activities were very good. Lectures drew the largest audience, with an average of 97 people in attendance at each (n = 41). This indicates that the Celebrating Women grants reached a sizeable campus audience. The make-up of the audiences, which covered a wide-variety of campus populations including men and women undergraduates, graduate students, post-doctoral fellows, and assistant to full professors, indicates that that the grants reached a diverse audience. Together these facts indicate that the program has a wide 'reach.'

There is also evidence that the program had a 'deep' reach, particularly for graduate students and assistant professors. This is illustrated by the large number of one-on-one meetings and small-group research discussions in which speakers engaged (one visitor met individually with 11 faculty and graduate students!) The prevalence of these meetings suggests that the grants not only fostered a significant amount of scientific and professional interaction, but also expanded professional networks for graduate students and assistant professors.

Evaluation by Grantees

Each grant recipient was required to complete an evaluation of his or her program. Grantees solicited feedback on their program through questionnaires or informal discussions, and then presented their findings in an evaluation report. The evaluation focused on the impact of the Celebrating Women program on participants and on its contribution to the goal of advancing women in science and engineering.

Evaluation questions focused on three main issues: participant reactions, promotion of women in science and engineering, and best practices.

On the first issue, the awardees were asked to provide general feedback on the audiences' experiences: what they thought of the speaker, what they learned, and how the program affected their outlook. Responses to this question were overwhelmingly positive, with every evaluation indicating that the audience learned a lot from the speakers and felt that the events were beneficial. Several major themes emerged within these positive responses. In general, audiences felt that the speaker(s) were:

- **Interesting** ("lively discussion," "wonderful insight," engaged audiences asked multiple questions, "among the best seminars [participant had] ever attended")
- **Encouraging** ("extremely open and encouraging," "provided direction for future plans," "helpful guidance," good suggestions on pursuing science & engineering careers)
- **Inspirational** ("supplied them with an example of success," "encouraging thoughts," sparked interest in a new research area or career choice, engendered enthusiasm)
- **Informative** ("learned new information," gained insight into a scientific problem, learned about a new technique, "provided a broader perspective," "offered concrete advice on proceeding forward in academia")

On the second issue, the awardees were asked to indicate how audiences' experiences and the program overall helped to support women in science and engineering. Responses indicated that invited speakers helped support women in a variety of ways. Several of the most common themes included:

- **Providing a role model** ("clear demonstration that women can and do flourish [in science]", "opened eyes to the relevance/competence of women in [science]," "inspirational," "example of someone [women in engineering] could 'look up to'")
- **Addressing career/family concerns** ("made it seem more possible to manage a career in science and also have a life," "specific advice on becoming successful and tenured while beginning a family," "I think the talk will help me to find a balance")
- **Speaking to climate challenges women face in science and engineering** ("good to hear about how people have dealt with the politics of being female in a mostly male world," "good to get a variety of perspectives on what it's like to be a female academic")
- **Suggesting alternative career paths** (new ideas about non-academic scientific careers, "insight into career options and opportunities")
- **Providing research support** (presentations and small group discussions allowed for research feedback and suggestions, "in depth discussions about everyone's research," "[speaker provided] a good suggestion specific to my research project that I hadn't thought of before")
- **Leadership and networking opportunities** ("helped me understand networking," "great ways to network," encouraged publishing efforts, suggestions on how to maximize mentoring relationships)
- **Mentoring** ("learned a lot about techniques to get where I want to go," "more direction for future plans," "advice useful for any career path in science," "addressed many questions that are important at a transitional phase in a person's career")

Finally, the grantees were asked to provide feedback on what they would do differently if they were to organize the same program again and what WISELI could have done differently to help make their program a success. For the most part, most respondents indicated that they would not change anything in the planning, organization, or implementation of their speaker program. Most noted that they appreciated WISELI's support of the Celebrating Women grants and that they felt WISELI had provided all needed assistance. A few grantees stated that they would want to advertise their program more effectively if given the chance to plan it again. They also indicated that WISELI could provide "promotional assistance." Additionally, a sponsor indicated that an opportunity for guest speakers to meet with a member of WISELI to learn about the program and about UW-Madison women scientists might be beneficial.

Current Review

An evaluation of the Celebrating Women in Science & Engineering Grant program was completed in summer of 2010 to complement the review conducted in the initial two years of the program's implementation. This evaluation was conducted in two parts—first, a number of grantees were identified from across UW-Madison (CALS, L&S, Engr, Vet, and SMPH). From these colleges and schools, six departments were identified to reflect "typical" recipients that were awarded grants in the previous five years. The second phase included interviewing the individuals affiliated with these grants—the applicants, attendees, and the department chairs, when available. The interviews questions were designed to determine if the grant increased visibility of women, decreased feelings of isolation for women in the department, and to determine if it had other unintended effects (see Appendix C for interview protocol).

In total, twelve people representing six different grants and departments were interviewed. These interviews were tape recorded and transcribed. The resulting transcriptions were uploaded into Atlas.ti to allow for qualitative analysis of the data gleaned from the interviews. Analysis consisted of categorizing interviewees' responses to questions posed by the evaluators. These "codes" were combined into themes to answer the following evaluation questions: Do the grants increase the visibility of women scientists and engineers? Do the grants decrease isolation of women in the departments that receive them? What are other unintended effects of the grants?

<u>Grant Increased Invisibility of Women</u>

The interviewees indicated that the program(s) funded by the grant did indeed increase the visibility of female scientists and engineers. This was especially the case in departments in which there was a small minority of female faculty or in fields in which there were relatively few women in leadership positions. In these instances, the programs and events provided role models for graduate students, faculty and post docs.

One of the applicants described her intentions and why she chose whom to invite with the grant funds:

> *I think we wanted to focus on bringing in big names because of inspirational value. I was writing the grant and conducting the program… I thought it would be really useful for me and hence, through my experience, other graduate students. I thought this would be useful to see women who were very successful in the professional field and also have a very fulfilling personal life. And for them to share that experience… I think it's hard to find those examples very frequently.*

At the same time, the applicants noted that both women and men would find these discussions valuable:

Anytime one can have a program or an event that focuses on the need for balance in discussing men and women in leadership roles and showing women in those roles is positive…that's what you really need – a real live person behind the discussion.

She also noted that students need a "safe" venue for these discussions:

And what the students said is that it helps having a comfortable, supportive forum in which to voice their own concerns and to hear them echoed by successful women in science.

Another recipient described how she invited a Dean from a different university because UW-Madison has yet to have a female in this leadership role:

[Inviting her] shows an example of a real increase of woman leadership in the field. The majority of the students in this college are women, yet the leadership roles are still mostly filled by white males…Students mostly have male role models, but diversity is good.

All of the interviewees noted that the funded programs did increase the visibility of women. Moreover, they hoped that the event would increase the awareness of the lack of women in various fields. Karen, who was a graduate student when she planned the program, hoped her department would notice:

And the people in the department are very supportive. I can definitely say there is no bias of any sort, but there is also no enthusiasm to say, 'Okay, there are not enough women; we should actually try to increase that.' At least that was my perception. So, hopefully, this gave some sort of awareness that that is not the case—that you need to think about why there are so few women. And when I left, there were four female faculty in the department. So, this definitely brought the issue to the front.

<u>Decreased Isolation</u>

Besides asking about the goal of increasing the visibility of women, the interviewees were also asked about whether or not the grant had the intended effect of decreasing the isolation felt by female graduate students, faculty and post docs in their departments. One recipient noted that it did not particularly meet that objective:

I don't think it really addressed that goal, but what it did was bring women speakers in that were scientists, and I think it was very helpful to graduate students, female graduate students in this department, to see that women really are in academia, that they have done good work, that it isn't just male dominated, that there are plenty of women scientists from all parts of this field.

Another recipient, who is a graduate student, noted that she personally does not feel isolated in her department, but recognizes that female faculty may:

I feel like some of the diversity issues are maybe more prevalent at the faculty level. So, as a graduate student in my program, it's pretty evenly split, fifty percent men, fifty percent women. So, I don't feel any of sort of the old boy's club sentiment as a graduate student, but I know in talking to some of the female faculty they often talk about how it's hard to break in because there are so few female faculty in their department. And I guess I notice that in our department, but it's a different feeling on my side.

A female graduate student expressed the same sentiment:

I don't think we ever felt isolated. We had a lot of women in our lab. I don't know about other women in other labs. I mean, I'm sure it helped because we got together, and it was a woman speaker and woman asking questions of the speaker, so it was kind of a woman thing. But I never felt isolated, so I guess I can't comment on that.

Clearly, not everybody has the same feeling about feelings of isolation—people have different perceptions even though they may be in the same department. At the same time, if there are very few females in a department, students may not have the opportunity to talk with others "like them" or they may feel uncomfortable bring up particular topics if a female scientist is brought in to discuss her research only. One recipient used the funds to provide a venue for these conversations:

The students found it was very useful to be able to talk women's issues with women speakers, which is something that doesn't often come up. We thought we could do this as part of a new grant program. Whereas if we just have a random woman speaker, then maybe we would try to block out half an hour and make sure the women graduate students have a chance to talk to her. But they might not feel they could raise career development issues or family issues, not women's issues at all. They might not have felt they could raise them if the speaker had not come in tagged as 'this is a program to help do something about women.'

Lastly, some of the recipients noted that the effects of this grant program are yet to be seen. Sandra noted that the outcome of the grant program may be the program, itself:

It's not like you do something and then there's an immediate flowering of wonderfulness. But I think it's always good to have high profile distinguished women come in, and I think that's a really good thing. And then giving the women in the department a chance to interact, I think that's also a really good thing.

<u>Other Unintended Effects</u>

None of the grant recipients was able to identify any negative outcomes due to receiving the grant or funds. In general, all of the recipients noted the receiving of the grant was positively received by their colleagues and peers. Examples of positive responses include:

It was great because it wasn't onerous, you know; the money was put to good use, and it enabled you to do things that really were good things. The whole thing was good, I thought.

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These types of program are not common but can make a big difference—real life examples lead to positive benefits. I am a big fan of the WISELI program.

******

I think I want to just reiterate that we really appreciate the WISELI grant, not only because they've allowed us to bring in amazing women scientists from all different fields and to hear about their career paths and have them contribute to our colloquium schedule… Just having the existence of the WISELI grant application sends the message that this is something that is important to our university and important to the STEM disciplines, and that the larger organizations that provide support for our programs are placing importance on these issues.

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I think it was a really positive experience, and I think a lot of people enjoyed that we had the luxury to have more speakers come in because we had this grant support.

One positive yet unintended effect mentioned by the interviewees was that it provided graduate students with potential places to apply for faculty or post doc positions. Laura is convinced that the grant is responsible for a graduate student's current post doc position:

I thought it was great for her, and since she was planning it, it made sense. In fact, I think because of it, she got a very good post doc job.

A graduate student considered different places to work because of the funded program:

I actually kept the contacts and applied for faculty jobs. And one of the places hiring—we had invited the Dean out to speak. I think it was [University name]. She came out and gave a talk, and I wouldn't have thought of applying to that university if it weren't for her.

The presentations also provided students with different career options:

We got speakers from lots of diverse areas. One of the women had done some congressional work, and one of the women had done lots of industry work; so, there were sorts of jobs I had never thought of. It was fascinating, I thought. So, I really enjoyed it.

In general, the greatest effects seemed to have been felt by the graduate students who planned and attended the events:

The fact that graduate students were leaders, that was a positive thing. It was something that rose from the students and from the faculty who were involved in the planning. It wasn't something that was imposed upon the department in any way. So, when you have something like that, that usually always gets you a more positive outcome because that's something people want to do and want to have.

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And the event for lunch or dinner was for graduate students who usually don't get invited to go for lunches or dinners with the seminar speakers and the colloquium speakers. So, that was a first thing. And that was a very good experience for all the people who went.

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I went to them, and the student lunches were really nice. I felt like the women really opened up and talked about how it was to hold a major faculty position and to juggle life and everything that goes along with it…I think they were told that they should try to talk about those things, and be open to questions because it was really nice. Sometimes when we get other speakers in, they kind of shy away from that.

Conclusions

The Celebrating Women in Science & Engineering Grant Program offers funding that enables sponsors in the physical and biological sciences, and engineering to bring prominent women speakers to the University of Wisconsin-Madison campus. The program aims to expose students and faculty to accomplished women scientists and engineers and to advance women in science and engineering on the UW campus. While on campus, invited speakers are able to contribute to these aims in a variety of venues, including research talks, small-group discussions, and one-on-one meetings. Evaluations from the first seven years of the program indicate positive outcomes of the program and successful effects in supporting women in science and engineering, such as:

- Increasing the visibility of women in a variety of science and engineering disciplines;
- Inviting additional speakers to ongoing departmental symposia;
- Providing role models in departments and fields in which the number of females are low;
- Career options and potential faculty and post doc positions for current graduate students; and
- Leadership opportunities for graduate students who plan and attend the events.

Although the grant did not lead to additional sources of funding for the interviewees, they did feel that the program was worthwhile and that they would apply for future funds to plan similar events. Furthermore, there were no negative outcomes identified by any of the recipients, rather, only positive reactions to the recipients' ability to plan programs to benefit their departments and increase the visibility and need for greater representation of females in the sciences and engineering.

Appendix A: Required Evaluation Form

Name of Grant Recipient:
Title of Program:
Name of Speaker/s:
Date of Event/s:

Event/s Held:	**# Attendees**
Lecture	
Brown Bag Presentation	
Dinner	
Reception	
Other:	
Other:	
Other:	

1. Please provide a brief description of the program and all events held. Please include a description of the topics discussed at each event, the audience each event attracted (e.g., faculty, post docs, graduate students, etc.), and how the speaker/s interacted with those who attended the event/s.
2. Please describe your assessment of the reactions/responses of event attendees to the speaker and/or events held:
3. Please describe the ways in which the speaker and the events held helped to promote the participation and advancement of women in science and engineering.
4. What were the best aspects of the speaker/s visit?
5. If you had the chance to plan this program again, what would you have done differently? What could WISELI have done differently?

Appendix B: Typical Schedule for a "Celebrating Women" Guest Speaker

Guest Speaker: Dr. Kathy Spindler, University of Michigan Medical School

Sponsoring Department: Medical Microbiology & Immunology (MMI)

January 29
3:30 – Arrival
4:15 to 5:00 – Meet with Stacey Schultz-Cherry, Asst. Prof. of MMI
6:30 – Dinner with Stacy Schultz-Cherry & Paul Lambert, Prof. of Oncology

January 30
early – Breakfast with Dr. Bruce Klein, Prof. of Pediatrics, Internal Medicine, and MMI
9:00 to 9:30 – Meet with Robert Striker, Asst. Prof. of Medicine (Infectious Diseases Section) and MMI
9:45 to 10:15 – Meet with Laura Knoll, Asst. Prof. of MMI
10:30 – 11:00 – Meet with Christina Hull, Asst. Prof. of MMI and Biomolecular Chemistry
11:15 – 11:45 – Meet with Donna Paulnock, Prof. of MMI
11:45 – 1:00 – Research presentation to Journal Club in Microbial Pathogenesis and Host Responses (open seminar)
1:00 – 2:30 – Lunch with MMI graduate students and post-doctoral researchers
2:30 – 3:00 – Meet with Curtis Brandt, Prof. of MMI and Ophthalmology & Visual Sciences
3:15 – 3:45 – Meet with Rebecca Montgomery, Asst. Prof. of Biochemistry and Molecular Virology
4:00 – 4:30 – Meet with Paul Ahlquist, Prof. of Plant Pathology, Molecular Virology, and Oncology
4:45 – 5:15 – Meet with the Stacy Schultz-Cherry lab (1 post doc, 3 grad students)
6:30 – Dinner with Laura Knoll, Robert Striker, Rebecca Montgomery, and Stacey Schultz-Cherry

January 31
early – Breakfast with Rick Gourse, Prof. of Bacteriology
10:15 – Departure

Appendix C: Interview Protocol for Grant Proposal Writer

Part A: Did the grant increase visibility and decrease isolation in the department?

1) What were visibility and isolation for women like in your department before your receipt of the Celebrating Women in Science and Engineering Grant?

2) What were your primary reasons and secondary reasons (if there were any) for applying for the grant? Were these achieved?

3) Did the events hosted by your department through this grant change visibility and isolation for you on an individual level? If so, how?

4) Do visibility and isolation appear to have changed for other women? If so, how?

5) Has the degree to which you are satisfied with your department changed as a result of your participation in the grant program?

6) Are there other changes that have occurred or that are occurring now as a result of participating in this program?

7) Were there any negative consequences of the event your department put on?

Part B: Did the grant mobilize the department to invite additional women speakers?

8) Did your department match the funds provided by the Celebrating Women in Science and Engineering Grant?

9) Since using the Celebrating Women in Science and Engineering Grant, has your department applied for another?

10) Since using the Celebrating Women in Science and Engineering Grant, has your department funded more women speakers to speak within your department?

11) Has visibility been increased? If so, how? What was visibility like in your department before and after these visits?

12) Has isolation been decreased? If so, how? In what way did you feel isolated/do you suspect other women in your department feel isolated before and after these visits?

13) Were there any surprise consequences, good or bad, that resulted from visits by women speakers that have been planned by your department?

Part C: Overall Remarks

14) Are there any other remarks you would like to make relating to your department's Celebrating Women in Science and Engineering Grant event?

WISELI Research/Evaluation Report:

Pribbenow, Christine Maidl. October 25, 2010. "Study of Faculty Attrition at UW-Madison: Combined Results, 2006-2008."

Study of Faculty Attrition at UW-Madison: Combined Results 2006 – 2008

Christine Maidl Pribbenow, Ph.D.
WISELI, UW-Madison
October 25, 2010

Table of Contents

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Background

In the spring semester of 2007, University of Wisconsin-Madison (UW-Madison) Vice Provost Laurie Beth Clark approached the Women in Science and Engineering Leadership Institute (WISELI) staff about conducting a research study of faculty attrition at UW-Madison. This request came after a report was disseminated in 2006 that provided some of the reasons why a sample of female faculty in the fields of science and engineering left UW-Madison.[i] Using similar methodology, a study of both female and male faculty members who left between the fall of 2006 and summer of 2007 was conducted and disseminated in the spring of 2008. This report, *Results of the 2006-2007 Study of Faculty Attrition at UW-Madison*, was used as the template for the next year's study of "leavers'" during 2007-2008. This study was conducted at the request of current Vice Provost, Steve Stern. Not only was he interested in why faculty leave, but he also requested information about the experiences of faculty who retire. Results from the studies of two cohorts of faculty, including a portion of the retiree study, are described herein.

Methodology

The names of 48 faculty members who left UW-Madison between September 1, 2006 and August 31, 2007 were provided to me in the fall of 2007. From these names, 42 former faculty were eligible[ii] for participation in the study;[iii] contact information was found for 35 of the possible participants. An email invitation, which described the study and included a link to the Provost's memo about the study,[iv] was sent to 31 former faculty members; mailed invitations were sent to the other four faculty. From these invitations sixteen individuals agreed to be interviewed for a participation rate of 46%.

The names of the faculty members who left UW-Madison between September 1, 2007 and August 31, 2008 were provided to me in the fall of 2008. From this list, 45 former faculty were eligible for inclusion in the study; contact information was found for 42 of them. An email invitation, which described the study and included a link to the Provost's memo about the study,[v] was also sent to these former faculty members. From these invitations, fifteen individuals agreed to participate, yielding a participation rate of 33%. Unlike the previous year's study in which all of the participants were interviewed, eligible faculty had the option of participating in an interview or completing a survey based on the interview questions. The survey option was developed to determine if data could be collected systematically, while still answering the research question: *Why do faculty leave UW-Madison?* Nine faculty members completed the survey between July 10 and August 5, 2009, while interviews were conducted with the remaining six.

In the same year, a study of faculty retirement[vi] was conducted. A list of names of faculty members whose retirement from UW-Madison was effective between September 1, 2007 and August 31, 2008 was provided in the fall of 2008. From these names, 63 former faculty were eligible for inclusion in the study; contact information was found for 60 of them. An email invitation, which described the study and included a link to the Provost's memo about the study,[vii] was sent to these former faculty members. From these invitations, twenty individuals agreed to be interviewed for a participation rate of 33%. From this group, four faculty retired from the UW-Madison, but took full-time faculty and/or administrator

positions in postsecondary education institutions. The interviews from these faculty, who are more similar to "leavers" than "retirees" are included in this combined report.

Interviews were conducted with the 26 faculty members using a standardized interview protocol (See Appendix A). Each participant was emailed an Informed Consent form that they signed and returned. All interviewed participants agreed to be audio taped. The taped interviews were transcribed into an electronic version of the text, which was inserted into ATLAS.ti, a software program used to organize, sort and code qualitative data. The interview data was then analyzed using traditional qualitative methods—portions of the text were coded, aggregated, and summarized into overarching themes. Survey responses were aggregated with these themes to identify the primary and secondary reasons why faculty members left, which were then weighted based on their relative importance to each participant. Ultimately, the results reported herein are a combination of data derived from both the interviews and the survey responses, and from years 2006-2007 and 2007-2008.

Population and Sample

The characteristics of the population of "all who resigned" were broadly similar to those of the study participants in years 2006-2008 (Table 1). The racial/ethnic composition and general mix of tenured and untenured faculty were proportionately similar in both groups. At the same time, the group of study participants included a higher proportion of female faculty than the leaver group overall. Also, the group of participants was slightly overrepresented by associate professors and those in the Biological Sciences division. The results in this report are from 36% of the population.

		Study Participants (n=35)	All Who Resigned (n=97)
Gender	**Male**	**20** (57%)	**66** (68%)
	Female	**15** (43%)	**31** (32%)
Race/Ethnicity	**Faculty of Color**	**6** (17%)	**19** (20%)
Rank	**Assistant Professor**	**14** (40%)	**47** (48%)
	Associate Professor	**10** (29%)	**21** (22%)
	Full Professor	**11** (31%)	**29** (30%)
Division	**Biological Sciences**	**14** (40%)	**29** (30%)
	Physical Sciences	**2** (6%)	**11** (11%)
	Social Studies	**12** (34%)	**39** (40%)
	Arts & Humanities	**7** (20%)	**18** (19%)

Table 1: Demographics of study participants (n=35) as compared to all UW-Madison faculty who resigned (n=97), 2006-2008.

Table 2 identifies where the faculty went after leaving UW-Madison. More often than not, faculty who left UW-Madison did so to take a tenured or tenure-track position at another major research university classified as "Very High" or "High" using the Carnegie Basic system for institutional classification.[viii] Approximately 14% of the people who left the university moved out of academe altogether.

		Study Participants (2006-2008)
Currently at an institution of higher education?	**Yes**	**30** (86%)
	No	**5** (14%)
Current title or position	**Assistant Professor**	**8** (23%)
	Associate Professor	**6** (17%)
	Full Professor	**13** (37%)
	Industry/ Private Practice	**3** (9%)
	Government/ Staff Position	**5** (14%)
	Unknown	**0** (0%)
Carnegie classification of current institution, Basic	**Research University-Very High**	**19** (70%)
	Research University-High	**2** (7%)
	Specialty/Medical	**2** (7%)
	Master's Level University	**1** (3%)
	Baccalaureate/ Arts & Sciences	**2** (7%)
	International University	**1** (3%)

Table 2: Current position and institution type for study participants (n=35).

Findings

It is impossible to capture all that was discussed in the many hours spent with the faculty participants and the corresponding analyses of the data. Not surprisingly, however, while each participant's situation was different from that of others, a number of themes emerged to provide a greater understanding of the factors that affect faculty members' decisions to

leave UW-Madison. Once identified, the themes were categorized and weighted based on whether they were primary reasons or secondary factors for leaving. Underlying categories were used to explicate the overarching themes. From this process, four sections emerged as critical areas of concern and are described in detail in the following subsections.

The themes that emerged from the 2007-2008 participants who completed the surveys and interviews were similar to those from the sample of faculty who left in 2006-2007, yet the themes themselves were weighted differently. For example, the 2007-2008 cohort was more likely to cite family or personal issues as primary reasons for leaving as compared to those who left in the previous academic year. They also cited budgetary or financial issues less frequently as factors in their decisions. In general, the majority of the participants had a positive experience at UW-Madison and spoke highly of their colleagues and students, while about one-third of the participants had negative experiences and accordingly, provided justification for their decision to leave. Regardless, each of the participants noted that there is never one sole reason that explains one's decision to leave; many factors contribute to this life-altering choice. With this caveat in mind, the multiple reasons for faculty attrition in the 2006-2007 and 2007-2008 cohorts include:

- **Balancing Professional and Personal Lives,** *as reflected in*
  - Respecting the Needs of their Immediate or Extended Family
  - Consideration of the Faculty Lifestyle
- **Issues with Tenure and Promotion,** *as reflected in*
  - Ineffective Mentoring
  - Positions Misaligned with Tenure and Promotion Criteria
  - Research not Supported or Understood
- **Climate Issues,** *as reflected in*
  - Research Environment
  - Lack of Collegiality
  - Experiencing Discrimination, Harassment and other Behaviors
  - Lack of Recognition and Overall Morale
- **Financial Issues,** *as reflected in*
  - General Budgetary issues
  - The Financial Relationship between the State and the University
  - Salaries, Lack of Raises, and Salary Compression

The following sections provide greater explanation about each of these areas and are explicated using the stories of the individuals themselves.

Balancing Professional and Personal Lives

Over half of the faculty participants talked about the need to balance their personal and professional lives, which caused them to make choices based on their immediate or extended family's needs or their own. Of the fifteen participants in the 2007-2008 cohort, eight identified this theme as a primary reason for leaving UW-Madison, which is similar in proportion to the 2006-2007 cohort.

Respecting the Needs of their Immediate or Extended Family

Four participants in the 2007-2008 cohort wanted to be closer to extended family and especially, aging parents. When positions availed themselves, the faculty members had a difficult time justifying *not* considering them, despite their fondness for UW-Madison. For example, Robert[ix] took a position at his alma mater because it is closer to his family and is also an institution that his children will attend college. Peter took a position that both advanced his career (his area of expertise is ranked 9th in the nation at his new institution, as compared to 31st at UW-Madison) and moved him within two hours of his extended family (from 9 hours while at UW-Madison).

Both Ben and Mark explained the importance of respecting the needs of their immediate family and in particular, each of their spouse's. Ben's wife felt isolated in Madison and wanted to be closer to her family. This, along with the financial state of UW-Madison, provided him with ample justification to seek another job. Mark's wife was also unhappy in Madison and was unable to find meaningful work. She was originally from another country and he noted that she never felt comfortable in Madison. He looked for a position on one of the coasts and he and his wife are extremely happy there.

Both Carolyn and Cathy looked for other positions due to employment needs of their spouses. Carolyn's husband had been looking for work in his field for a number of years. Approximately a year and a half before leaving, Carolyn approached her department chair and told him that she would look for another job if her husband was unable to find work in Madison. The discussion of this follows:

> *I mean I really thought the University could have supported me more and they didn't…I realize there are difficulties with two faculty member families. But it wasn't a faculty job.*
>
> Interviewer: So can you tell me about how was it handled? About the negotiations, how did it come up?
>
> *So when I was interviewing for the job, I was told that there is no program to help spouses find jobs. After I got [to UW-Madison] I was told a different story. And then I was told it was too late because I was already there and he didn't qualify for these programs…I felt like the chair and the talks with the Dean or over at the [college/school] really didn't take me seriously because, a year and a half before I left I said, 'My husband can't find a job and I will leave if he cannot find a job.' I've really kept my chair very informed of this throughout the entire year and a half…And then when I gave my notice, everybody acted surprised! They said, 'What can we do for you?' I said, 'I've been begging you. I've been in your office once a month begging for something to happen.' So I just felt like there was just no support there.*

This faculty member felt a lack of communication about dual-career hiring and ultimately, felt as if her requests went unheeded.

Consideration of the Faculty Lifestyle

Four of the 2007-2008 participants were in committed relationships with other faculty members (two of whom were also at UW-Madison). The two whose spouses were faculty members elsewhere had contributing factors besides the long-distance relationship. Barbara was not completely happy with her position and "didn't see anything getting better in her

lab." She noted that she preferred the other position because it allowed her more "private time" with her spouse. Tamara was one of the only women in her department and saw other females "not going up for tenure." In her sixth year, she decided to not even try and sought a position near her husband.

Cathy's husband had his own business for the majority of the time she was at UW-Madison, but when he received an offer somewhere else, she started looking. The job she chose was not a faculty position. After fifteen years, she decided that the faculty lifestyle is not what she wanted. Now in her current position, she appreciates the hours and the lack of stress in her life around financial issues and continuing her lab:

> *There were some frustrations with budget cuts and every time you write a grant they tax more and more of it to try and pay for everything else. So those things start to add up as being frustrations. [My current job] offers a lot more money, and it was kind of like, hmm, 'I could work an 8 to 5 job, get paid a lot more and not have the headache of waking up every day hoping I'm going to have the grants funded to pay for the people to work in my lab.'*

Having her husband find work and not being in academe was an ideal situation for her.

Elizabeth, after being at UW-Madison for six years, questioned:

> *I wasn't really sure I wanted to be a tenured faculty member at UW-Madison or anywhere for that matter. Given what I had seen, given the department that I was in... I wasn't sure I wanted to be a tenured faculty member in that [school/college] in that [department].*

For her, the ideal position did come along and she left before trying to obtain tenure.

Both Luke and Elizabeth thought that Madison is family-friendly, but not single friendly. Luke explains:

> *I was always aware that I wasn't alone in being a single person, a single faculty member who struggled to meet people in Madison. What amazed me about it is that the university never seems to notice this. And it's not that I wanted the university to set-up singles meetings or something that, but rather that I felt that the university's focus on family issues was so completely pervasive that it made a bad situation worse… The pressure – when they're trying to recruit you as a junior faculty member, one of the first things they tell you is, 'Oh it's a great place to raise a family.' And of course the sort of sub-text that no one says is, 'It's a crappy place to start one but if you've got one, you're in great shape.' But I just felt, as a single faculty member, not only did I feel isolated and alone, but I also felt that the university was basically once again reasserting domestic norms of the region that made me feel once again like a bit more of a freak.*

Elizabeth concurs:

> *And Madison, even though it doesn't seem like it should be a tough place, it is. And it's a very, it's a great town. It's a wonderful Midwestern town, but it's also a very family-oriented town. And that becomes very difficult for faculty who are still single. Because it's just tough...All of your colleagues are married and most of them have kids. So they've got their own thing going on. So there's really very little opportunity for you to interact with colleagues your own age outside of the office socially*

because they have families…I mean they have other responsibilities. That can be tough. And maybe that is something that really, that should be brought up as well. If the UW can do anything about that, I mean clearly. But for me, I think that that is a factor.

Jessica noted, "I was planning to have a child and was attracted by job offer at school nearer to my extended family. I was also attracted by parental leave policy at another school, which offered a semester of full pay for both me and my partner" (who is also a UW-Madison professor). Anthony arrived at UW-Madison as a spousal hire, with his wife initially receiving the appointment. When his wife received an "outstanding offer" at another institution, he again moved with her.

Although these previous sections highlight many negatives, the participants did cite many positive attributes about UW-Madison as an institution, and its faculty, staff and students in particular. Some noted that they miss the high quality research, phenomenal students, and the "intellectual playmates" they encountered there.

Issues with Tenure and Promotion

Similar to the previous year's cohort, approximately 60% of the 2007-2008 participants stated they were either "Somewhat" or "Not at all" satisfied with the tenure and promotion process when asked about this area in particular. When asked to explain any feelings of dissatisfaction, they described the inadequate or ineffective mentoring they received, not receiving enough support for their research, and the misalignment between their positions and how they were evaluated for tenure.

<u>Ineffective Mentoring</u>

Lack of effective mentoring proved to be detrimental to junior faculty who were not receiving the kind of support they needed to be successful. Ian felt this as extreme stress to the pint of "breaking":

[Leaving] is very much a direct result of the lack of support. So I think it was really both what I perceived as personal grievances with me, which really kind of questioned if I would get a fair shake for tenure. And then mismanagement of junior faculty to the point of incompetence from the chair. To really set us all up for failure….[The department] would keep pushing us to see just how much we could bleed for the department and still get tenure. We all felt that way at various times. That they are going to keep pushing us and piling more on until we just what? Break?

Ian attributes his struggle with the tenure process to ineffective mentoring. He describes his experience in advocating for a colleague, and the role of other faculty in the department:

I felt that there should be instilled in departments that if you hire someone, your job is to get that person tenure, to be that person's advocate. And if you're not doing that, it's your failing… Like for [Colleague Name], I was advocating for her, and not making senior faculty happy because I was saying that part of her failure was their fault, their really poor mentoring. And they hired her—she was a strategic hire, and that's in the strategic hiring program. So, if they were going to do that, then they needed to be working with her and bringing her to the point where she would get tenure at the university. And they just felt like, 'Well, we've given her a break by bringing her into this fantastic department, and now it's sink or swim for her.' And departments shouldn't be able to get away with that. I think annual review letters of probationary faculty should be reviewed by someone. Mine were

just shocking. My wife was a manager and she would say, 'Wow, if we took a tone, even approaching this, it would mean that the person is about to get fired,' which was exactly the case. I mean they were trying to get rid of me.

Paul overheard his mentoring committee discuss him at a meeting during his first year, in which they said that he was not going to get tenure. A number of issues plagued him (as described below) and he indeed was not tenured. He chose to leave in his sixth year before going up for review. Paul reflects back on how the negative statement he heard affected him:

These are the people that are supposed to mentor me to make tenure in 6 or 7 years. Well for one of them to make a comment that I wasn't going to make tenure… I took that into consideration but it wasn't a driving reason why I did not make tenure….But I thought that was pretty early for someone to start making such comments.

Interviewer: So from that point on, that was in the back of your mind?

Always been there… I mean I looked at my abilities and not to say that I am self-serving, but I'm a good scientist…I do things and make sure that what I do, I do it well.

Carolyn's committee quickly dissolved due to a faculty member who caused dissension among the group:

They had a mentoring committee for me, which was one of the very appealing aspects when I took the job, that there was this mentoring committee. But then there was somebody on the mentoring committee that should not have been on the mentoring committee. And nobody wanted to…not only should they have protected me against this person, which they didn't, but then they stuck him on my mentoring committee because he basically forced his way on and nobody would stand up to him. And then the mentoring committee completely broke down because nobody wanted to deal with him, nobody wanted to meet with him. So it went from trying to schedule mentoring meetings to when he couldn't make the meetings to finally just not having meetings.

As described, many of the faculty members left before even going up for tenure, yet they spent a significant amount of time at the UW-Madison before doing so, often between four to six years. Ineffective mentoring played a significant role in their leaving, yet they felt unable to address this issue.

<u>Research not Supported or Understood</u>

Both Erik and Cathy had heavy teaching loads and were directors of undergraduate programs, which affected the amount of research they were able to conduct in 6+ years. In the first meeting of Maria's mentoring committee, a member said that she would not get tenure with the research she conducted. She found this perplexing given that she had presented this research during the hiring process. She explained this:

At my first mentoring committee meeting, I was told that my research is not valuable. And [this type of research] is not something that they would encourage me to do because it wouldn't lead to my tenure at the university.

Interviewer: So they hired you knowing …

That I did this type of research before I came [here]?! [laughing]

Interviewer: So you came here with the understanding that you would continue this research?

Yeah!

Paul, Carolyn and Luke described how their research was generally not supported during their years at the University, which for them, created feelings of professional isolation. Paul was one of two tenure-track faculty members in his department conducting "basic science" research amongst fifteen other departmental members who were mostly clinical faculty. Paul described his experience:

> *I did get initial financial support from the department in terms of start-up funding, but after that, support was mostly limited to faculty that were in [practitioner research]… it didn't seem like they quite understood some of the challenges that researchers face, the types of support that I needed. Not necessarily the monetary support, although that's important. But there's a concern about lack of focus on the basic science aspect of the department. So, at times I felt isolated…I just didn't have the type of colleagues that I could relate to in terms of the type of work I was doing.*

Carolyn felt that her research, which she described as "mainstream," was different enough to warrant seeking support outside of campus:

> *And you know the big [reason I left] was that I didn't have the support for my research that I needed as a junior faculty person… I couldn't find mentorship for grants. I couldn't find co-investigators on grants. I had to search outside the university [for mentorship and collaborators] and that's something, particularly junior faculty members, shouldn't be doing.*

Luke reported that his feelings of isolation grew when he recognized that his research methodology was beginning to look "different" as compared to others in the department:

> *I found the department getting less appealing…I was increasingly aware that there was no way that I would be hired in the department right now doing the type of work I do. If I were coming out of grad school, there's no way they would even look at my application just because I don't do the right type of work. And that sort of depressed me.*

Barbara received mixed messages about what was valued in her department:

> *My tenure and promotion committee met, but the procedures and expectations were unclear, as I was with a group that was not highly regarded in the department and did work that was deemed to bring in a lot of money, but not to be of high research quality by some of the faculty – it was 'too applied.' So, I felt I had to meet the requirements of two jobs.*

Tori came to the department as a spousal hire and was a tenured professor at her previous institution. After arriving at UW-Madison, however, her department still needed to put her up for tenure, which she achieved successfully. Despite this, Tori found the promotion system "ridiculous":

I couldn't deal with [the model of rewards] here it. The counting up of articles that people have published—I found it gross and ridiculous…I find it much more complicated how you weigh people's value, and if someone is an incredible teacher and doesn't publish twenty-three articles in seven years, it doesn't mean that they're worth nothing. And if they're a good colleague, then that also makes a difference in life. So, yeah, I wasn't happy with the kind of evaluation system here, although I did well.

For these faculty members, the evaluation system for tenure preview proved to be problematic and misaligned with the type of research they conducted. Further description of this issue is described next.

Positions Misaligned with Tenure and Promotion Criteria

Many of the faculty interviewed had split appointments. Ian was hired with a split appointment of 75% extension and 25% research. Despite this appointment, he was expected to teach, and as mentioned previously, he received very poor performance reviews during the time he was at UW-Madison:

In my department, you're still expected to teach one class per year, which I didn't have a problem with, but if you have 50 percent teaching appointment, you're expected to each two classes per year. So, I thought that was totally inequitable. It was the equivalent of having a 25 percent overload teaching appointment.

Interviewer: And how was that addressed in your department?

It wasn't addressed. I was just told, 'Tough. That's the way it is. That's how we do it.'… And I consistently got either the best or the second best teaching reviews in the department every year that I was there and taught. But yet, there was no reward for me for teaching because I didn't have a teaching appointment. And I got very negative performance reviews the whole time I was there, every year, even though I was publishing a lot. Some years, I published as much as all the full professors in the department combined. I was publishing like four or five papers a year. I was getting, say three hundred thousand in grants, again as much as all of the full professors combined. And what they could nail me on was they kept saying that I didn't have an adequate extension program, and they insisted on defining extension extremely narrowly, more so than other departments did…And I just didn't have any other options but to leave.

Peter had a split appointment that was also predominantly based in extension:

I did not anticipate the research component would be weighted so disproportionately toward grant dollars and research publications. I did not feel there were clear expectations of what was required to achieve tenure for my position and this was often communicated as, 'each case is different.' My original mentor committee chair retired soon after my arrival and I was not really mentored—only meeting once a year with my mentor and committee.

When asked to identify some of the more negative aspects of UW-Madison, a survey respondent noted:

I do feel that for folks with a majority appointment in extension that the tenure process is unfair and divisional committee members are not evenly balanced to appreciate what a strong extension program is comprised of.

For faculty with heavy teaching loads, no teaching opportunities, or extensive outreach activities, they found that their position expectations and standards for tenure were misaligned. Erik explained his experience when his service to the State came in conflict with criteria used for tenure in his department:

At almost every other campus in the country where someone's doing this, that person is getting credit towards their extension duties. [The tenure process and criteria] are not rewarding the things that [the University and department] are actually wanting…They didn't even want to acknowledge that maybe they just have a different standard. They just insisted that this was the way the university was. I just kept saying, 'How is that possible?' People get tenure who do very different things, that don't do analytical research whatsoever and they're going to get tenure for scholarly contributions – the metrics are based upon what people say the metrics should be…"'s defined by the people in that field. And at some point, the divisional committee wants to know that and be educated about that. They're not, they don't just want to say, we only believe in one model. They want to understand what it is that someone should be contributing in a program area and if they're doing that at a level of excellence then that should be rewarded.

He continued:

But I think there was this real big disconnect with the tenure system in general…The people that are sitting there on divisional committees now for example, got tenure with 2 or 3 journal articles in the same time they're expecting us in the same journals to have 12 or 13…And that's a pretty big disconnect. Because this isn't like inflation. It hasn't gotten necessarily any easier to make good contributions. I'm not saying we should have only had 2 or 3 papers. You know, technology changed our product. I get that, that's fine. But it was really kind of this you know, holier than thou attitude that was quite offensive…. This idea that you have to do something that we couldn't necessarily do ourselves, because we couldn't even run the stats packages that you're running today.

Paul, who was discussed earlier, had ample time to conduct his research but was not offered teaching opportunities through his department. Yet, he was told that for tenure, he would be evaluated on his teaching.

In terms of the university, it would have been helpful to know how the teaching aspect works for people who are not part of an academic department, a basic science department. For those who are not part of a basic science department, we need to know how to meet our teaching requirements or at least provide means for which we'll be successful at our teaching requirement. I was told I was 100% research and so most of my focus was on research. And then I find out later that the teaching activities that I had were not sufficient. Somebody should have told me…this is the way you need to go about making sure that you have enough teaching activity.

Sam described being "used up" and feeling tired all of the time with the amount of service work he was required to do because of his appointment. He noted that no one took any action to help him when he pointed this out. For these faculty members, the natural "breaking point" to end the cycle was when they chose to leave.

For the faculty members described previously, criteria for tenure evaluation was often consistent with their appointment at hire, or they changed mid-stream. This inconsistency was too much for them to continue wt the UW-Madison and be successful.

Climate Issues

The exit interviews are important because they allow former faculty members to share their experiences and perceptions of UW-Madison in a way that they have not been able to do so otherwise. Often, as seen in the previous two sections, a number of faculty members shared experiences that can be similarly categorized (i.e., work-life balance and tenure). Others have unique experiences that can only be grouped thematically into the overarching category of *climate issues*. The next few examples provided by individual faculty fit the current, working definition of climate that was in use by the Provost's Office at UW-Madison during the time of the interviews:

> [Climate is] the atmosphere or ambience of an organization as perceived by its members. An organization's climate is reflected in its structures, policies, and practices; the demographics of its membership; the attitudes and values of its members and leaders; and the quality of personal interactions.

<u>Research Environment</u>

Daniel became increasingly aware that the department was not a good fit for him after his research began to evolve. Housed in the medical school, he was in a mostly clinical department, yet he conducted basic research and soon found himself feeling completely "out of place." He began to interact more with faculty and staff in other departments and research centers because they were professionally compatible. When he requested a move to another department because of these tensions, his colleagues fought against his move and put up logistical barriers, including requiring him to keep his research grants in the original department. He felt that there was no one in central administration to help him and thus he looked for a new position instead. His spouse, who was a practicing doctor in the medical school, left as well. Daniel describes this:

> *She was an associate professor doing really well. They actually lost both of us…there was no central—I don't know how you fix this, but at UW, there was no central go-to person that says, 'Here's this guy who's got advocates across five departments. You've got that kind of guy, and then you've got his wife, who's got a tremendous amount of support on campus. So, there's got to be a way to keep these guys, and they're basically free.' I have an R01. I got a $450,000 start up package to move me [to my new institution], where UW could have had me for free if they just simply put the dots together and had some way to keep me that was independent of some bottom-up departmental. I don't really know what the mechanism would be, but there was no mechanism.*

He did receive an offer from another institution and when asked, "what would it have taken to get you to stay at UW?' he responded, "just a job—not a higher salary or anything—just a job."

<u>Lack of Collegiality</u>

Ian too felt that the department put up roadblocks to his success. He was especially discouraged to find that the department chair was unhelpful and in fact, contributed greatly

to the climate issues he experienced. Ultimately, he felt that he had "no avenues to redress" the "hostile" department chair. As an assistant professor, he felt especially vulnerable:

> *I think for assistant professors, the idea is that no matter what you do, you're going to get screwed. Because even if I had gone up for tenure, they're going to get you at some point. Your position is so tenuous—not having tenure—that no matter what you do, you can't piss off your department chair. I was trying not to do anything more like going directly to the dean and talking to him, because they're going to get you eventually. So, there is no protection out there, and there has to be. I don't know what it would be…So, for certain cases, completely removing the tenure decision from the department [was needed]. I mean, departments and chairs can do things that should make them be removed from the tenure decision.*

Ian also tried to move with the help and support of other department chairs, but the Dean would not approve the transfer. Ultimately, Ian found it easier to take a new position at another institution, where he is now a tenured professor.

Tori felt that the chair treated her "like everyone else" but felt very isolated from her colleagues in a "cold and bureaucratic" department and school. She explains:

> *It was just the whole way that faculty and students interacted, the whole way the department was set up. I found this place incredibly cold and bureaucratic and impersonal. Yeah, I just felt that people in general were not very good to each other.*

She continues:

> *The school is made up of a large number of very gifted individuals who almost never interact with each other. And so, I would say that for people who have a very strong personal agenda of what they want to get done, it's probably a rather good place to work because there's not very much interference. For someone like me, who thrives on lots of personal contact, it was a very difficult place to work. People are very, very busy with any number of things… and that means that they're not very available for any collegial interaction. The building is also designed so that students are never on the same floor that faculty offices are. So, there's not very much crossing of paths, and I think that really is fine with some people. It really was not fine with me.*

> Interviewer: So, you felt very isolated professionally and I'm guessing personally, too? There was no interaction outside of—

> *Right, I think it's a very isolating place. I'm very interested in working across disciplines, and that's completely impossible. And certainly if I wanted to do something with someone in another discipline, that was terribly hard to arrange. I came from a small place, so my expectations were very, very different, and probably, my needs were very, very well formed. You know, I wasn't that young when I came here…I had already been teaching for a long time and had a sense of what institutions were like, and this one was so different. It was very hard for me, I think, at that point to make an adjustment.*

Ultimately, Tori moved back into her previous position while her partner stayed at UW-Madison. When asked what is different about her current position, she notes that she has

"an open door to her dean," and as a faculty member, she feels "well-treated and valued" at her current institution as compared to UW-Madison:

> *[At UW-Madison], I always thought that faculty was treated as enemies, like this institution was so divided up and that people…sort of saw faculty as not particularly desirable. They wanted to get them any way they could. I came from a place where the faculty were seen as what the university depended on. If the faculty weren't loved, no one was loved—there was no university. And so, they bent over backwards to treat us really well.*

Not everyone felt a negative climate in their department or at UW-Madison overall. One of the survey respondents notes, "We had a wonderful department chair who was supportive of my needs within his abilities and also was a great mentor." Chris described UW-Madison as "egalitarian" and had many other positive comments about his former institution:

> *And UW has a strong sense of egalitarianism. It has a strong sense of wanting to do the right thing. I think it treats people very fairly. I think as an institution it bends over backwards to make sure that it's being fair to all parties in whatever goes on, whether it's a student complaint or faculty development. You know, I was just really impressed with colleagues that have sat on these P&T committees for a number of years evaluating a number of different kind of faculty how genuinely interested they were in the person, even though they're not in their same department or whatever, and it was a real pleasure to associate yourself with people like that. And so, I would say that among lots of positive qualities that I could recount, given a long enough time period, that is one that is, I think, quite notable and UW should be proud of it, even if they don't even recognize it themselves because they're in the middle of it and that kind of thing.*

<u>Experiencing Discrimination, Harassment and other Behaviors</u>

One of the interview/survey questions was designed to elicit experiences of discrimination based on personal attributes. The responses to this question complement the qualitative data gleaned from the interviews. Many of the 2007-2008 survey respondents noted "Family Status- Responsibilities" as a factor. Some of the faculty members noted "Age" and "Marital Status" (see Table 3).

	Yes (2006-2007)	**Yes (2007-2008)**
Age	3	3
Gender	3	0
Sexual Orientation	0	0
Marital status	3	3
Family status/responsibilities	2	6
Race	2	0
Ethnicity	3	0
Disability status	1	0
Religious beliefs	0	1

Table 3: Responses to the question: *Is there anything about you personally that may have been a factor in your experience at or decision to leave the UW?* for 2006-2007 and 2007-2008 cohorts.

Indeed, a number of the highlighted themes came out as the areas in which the participants were the least satisfied.

Experiencing discrimination, harassment, and other behaviors was identified by some of the participants as they described behaviors by departmental members or others that made them feel uncomfortable and in extreme cases, in "unsafe" and "stressful" environments. Two faculty listed this as the primary reason that they left UW-Madison.

Erik, who was located in a primarily female department, described how he and his male colleagues heard male-bashing jokes. Erik also noted that his mentor said she "did not know how to mentor a male." As seen in previous discussions, lack of quality mentoring did affect his chances for tenure. Once he was told to "get the hell out" of the department, he made his decision to leave. Other male colleagues followed. According to Erik, another faculty said, "that he didn't want to be the only man left."

Dawn provided her perceptions of how women of color feel on campus:

> *Madison is kind of known as a place where if you're a woman of color, you're not going to do well. And it's a terrible thing, but the way they put is that, 'Oh, you know, women of color leave a lot. You should look at some numbers, a lot of them leave.' And usually the department says, 'Oh they weren't happy here." What they mean is that Madison isn't a great town. People don't want to live here because it's so white. But that's not really true.*
>
> Interviewer: What is the truth?
>
> *I think some of the departments are very racist. So, take [department name] for example. A friend of mine wrote a really great book from a wonderful press and her department didn't give her tenure because they didn't like the book. And it was on race, ethnicity, and feminism…She went to [another institution] and got tenure there. This happened a lot. I mean a lot of people I know, women of color I knew didn't get tenure, had a hard time at Madison and went out and got jobs at better places.*

Two other faculty members felt that their ethnicity and race played a part in how people treated them. Both were born in other countries but had been in the United States for many years. They provided examples of how they perceived both racism and ageism due to their appearance. They did not file any legal suits but wondered if people treated them differently because of the way they looked and their accents.

Other examples of discrimination were cases of sexual harassment as observed and described by some of the participants. Besides experiencing this directly in the department, they explained how they were very disappointed in campus administration's handling of the situation. For them, both the departmental and campus climates were perceived as negative. When asked about the most favorable and least favorable aspects of her department, Maya responded:

> *Um, not so favorable…no women in positions of power. The men in positions of power would bad-mouth some of the women who were higher-up. Call them names in front of people…There was no support system for the women, young women. Good things? Hmm, this place sucked.*

She goes on to explain the effects of a person who had been harassing her and other women:

He created a work environment that was very uncomfortable. Ultimately when I started going to people, asking what to do, it was basically, 'Don't talk about it. Just suck it up and act like everything's fine.' And that was what my chair said, and mentoring committee and everyone just said, 'You know, we can't change this person. You just need to learn how to deal with environments that aren't always going to be great.'

Thomas, who was in a department where a harassment suit had been brought against one of his colleagues, spent a majority of the time explaining how he was disappointed in the Dean of his college/school and other UW-Madison administrators at how they handled the situation. He noted:

I would never have believed that they would convene a panel, not tell us who was interviewed, come up with factually incorrect information, not give us a chance to even look it over before the dean accepted it. And I would not have ever believed everybody would fall in line and say now we support this report without ever hearing the other side of the story. It was an unbelievable sequence of events... Ultimately a settlement was reached. Ultimately I left. Ultimately the other faculty member left. But it was the most bizarre sequence of events I've ever seen. I would never have believed that somebody accused of sexual harassment would be placed in charge of somebody they were accused of harassing.

Ultimately he left, but not without feeling that UW-Madison was "schizophrenic" due to the contradiction in the values they espoused and in their practice. He admits he had an "idealistic" view of the institution and reports that he will never return to academe because of his experience at UW-Madison.

Climate issues were listed as primary or secondary reasons for leaving by over half of the respondents. For these participants, there was a critical incident, a series of events, or some other primary factor that caused them to think about leaving. This next section provides examples of some of the other factors that intensified faculty member's desire to leave.

<u>Lack of Recognition and Overall Morale</u>

Elliott, a full professor who had been at UW-Madison for over a decade, explained that being nationally known served to be a detriment for him in his department. Once he was established as an "expert" in his field, he was sought out both in the country and internationally for his cutting edge research. Yet, he failed to receive any local recognition for the strides and contributions he had made in his field. His department chair, who was also senior, was unable to support him, nor did Elliot feel that he tried to. Elliot admits he did not consider leaving until he was offered with an endowed chair position and his salary was doubled.

Some faculty, although in the "retiree" list, are more similar to the faculty who left mid- or early-career. Victoria retired and took another position due to a number of factors about her discipline and how it affected the department culture:

I felt that the department became increasingly polarized and factionalized, that this in some ways reflects what's going on in the profession at large… I think, partly because the culture changed, there is less respect for different types of work. [In the past], there was more sense of you did something that you thought was very good, you thought other people doing it were doing good work. But there

was, as there is in the whole profession, a tendency not to be enthusiastic about types of work that weren't one's method. And I felt it was really unfortunate. There were types of competition that were unfortunate. I felt that-and I'm preceding this with "I felt,' I think most people would agree—that there was a kind of competition for graduate students, which was really pernicious. I know some students still pressured by it. I mean, I always felt very strongly that you had to let them make their own choice, and this was not healthy in a lot of ways.

Cameron also took a position at another institution and described why he chose to leave:

The stress level was too high. I couldn't stay at UW. And my stress level has gone way down, even though I'm chair of a big department. I feel much less stressed. But I feel good about it. I feel that the world is a better place for what I did at Wisconsin, and in the end, I wouldn't give that up for anything.

For Luke, the "mass exodus" of his colleagues caused him to think about his department, and his place in it, in the future:

What worries me is, I don't think [the University] could have done much at that point to keep me. And, so I don't want to lie about it and suggest that these are the things that determined it. They were just things that made me feel a lot more sour about it… so many of my friends were leaving from my department…there was a good chance that they were going to go made the whole idea of my staying even less appealing. And it seems like the people who weren't likely to leave because they had great contracts, good salaries, good positions in my department were exactly the people I didn't necessarily want to stick around for. Whereas the people who I could see that were likely to go on the market in the next few years were the ones I really do like a lot. And I just thought, this department may become a very lonely place for me five years from now.

As described in the section above, climate was a significant factor in faculty members' choices to leave. For some, the issues were subtle and covert, while others were blatant and ongoing. Regardless, the interactions between people influenced these participants greatly.

Financial Issues

The 2006-2007 cohort of faculty participants identified financial issues more often than the 2007-2008 group of "leavers." In particular, two areas of concern identified by the previous year's cohort included salary compression and the financial state of UW-Madison and its ties to Wisconsin. Approximately half of the participants the 2007-2008 year identified a financial issue when asked about leaving, but they rarely identified it as the primary factor or even secondary factor for leaving. Rather, financial issues were mentioned when asked, "What are the worst aspects of UW-Madison?" The responses to this question included overall financial and budgetary concerns, the financial relationship between the state and UW-Madison, and salaries.

<u>General Budgetary Issues</u>

Tori identified a number of ways in which general budgetary issues were experienced on a daily basis.

I felt I was being nickel and dimed in these really unpleasant ways. And so, if I wanted to invite a speaker, and in order to get the honorarium fee, I've got to scrounge. That's fine. Then I need to

take the speaker out to dinner. Well, there's a maximum I can do, and the state won't pay for the wine at the meal. So, I've to get receipts or pay for the wine myself. And of course, the meal has a maximum of X amount per person. At a certain point, you feel so petty, that sort of thing. So, making that more flexible and liberating the funds so that they could be used in a way that was quicker and easier—that's something that is not likely to be possible, but it was a source of continued aggravation to me.

She also compared her current situation with the budget at UW:

Not having a large enough research expense budget was something really problematic. And I think I had something like $3,000 a year in research money. At [current institution], I have about sixteen thousand. So, it's a big difference. It allows me to travel, to go to conferences, to pay a research assistant if I need to, to pay for a translation of one of my books, that sort of thing. I think my professional profile has changed dramatically in two years, partly because of that… Finding ways of supporting faculty research that are not only through the fall competition, which has a very limited budget. When I was on that committee, we used to try to figure out ways that we could get WARF to change the funding formula for the research competition. And instead of 3%, go to 4% on the yield, things like that. Anything like that that would generate more money for the faculty that would be more welcome and I think quite useful.

A few of the participants discussed the inability to attract or retain graduate students as a critical issue. Mark noted:

That was one of my biggest complaints about the university. Was that I needed to build a graduate program because that's what the department does. But there was virtually no money to do so… I ended up with a strategy of trying to find diamonds in the rough.

The participants also talked about the need for more support for graduate students. One person wrote the following response to a survey question:

The worst aspect about UW—apart from research funds and salary and general departmental budgetary shortfalls—was the fact that we didn't have enough money to make offers to be competitive in recruiting graduate students (although many of the students were terrific).

Another faculty member concurs and noted, "A strong well-supported graduate program is essential to recruiting and retaining strong research faculty." The faculty who found this to be a concern sought out positions where graduate students and others were supported at an appropriate level and for their full graduate careers. They also went to institutions in which they had more resources and the ability to chose how to spend funds.

<u>The Financial Relationship between the State and the University</u>

The financial relationship between the state and the University was cited as a critical factor for almost half of the 2006-2007 participants when making their decision to leave. Ben, described how the "constant budget crisis" had caused a decline in morale for both himself and his department. Cathy noted, "constant budget frustrations…and it seemed like the last probably 5 years [she] was there, it was more on the forefront." Mark concurs and described how his spouse was "completely set against Madison and just constantly worrying about the

financial crises" and how he just got "really tired of it." Mark noted that he chose to leave for a privately funded institution intentionally to decrease this anxiety.

The faculty participants were acutely aware of the many ways in which scarcity of resources affected others at UW-Madison. For example, a few discussed how staff members, both classified and unclassified, were bearing a greater burden of departmental work. In various offices and departments, people were "let go," which meant that staff members had other responsibilities added to their positions. Similar to faculty, they too were not receiving raises.

Brad reflected on how UW-Madison has handled the lack of funding and delayed passage of the state budget. He described how these situations affect faculty, especially in regards to salaries:

> *I think Madison as a university has done an extraordinary job with the resources that they've been given… I realize that they were under deep structural constraints in the state, but when I was there they had, I think there was only one year of merit increases. And there were either two years of a freeze and one year of [raises] just across the board. So, by the time I was put up for tenure, my salary was not at all competitive with what new people were getting on the junior faculty market.*

This next section delves more deeply into the issue of salary compression.

Salaries, Lack of Raises and Salary Compression

Lack of salary raises and in particular, salary compression was identified as another concern for many participants in the 2006-2007 cohort. Salary compression "exists when employees with more organizational seniority and experience receive lower salaries relative to new hires."[x] Figure 1, which depicts the average salaries of study participants, all faculty "leavers," and UW-Madison faculty overall from 2006-2007, suggests the perception of compression in associate professors' salaries is warranted, as their average salaries ($66,400) are less than all faculty "leavers" ($73,200) and the faculty overall ($76,500) for that particular year.

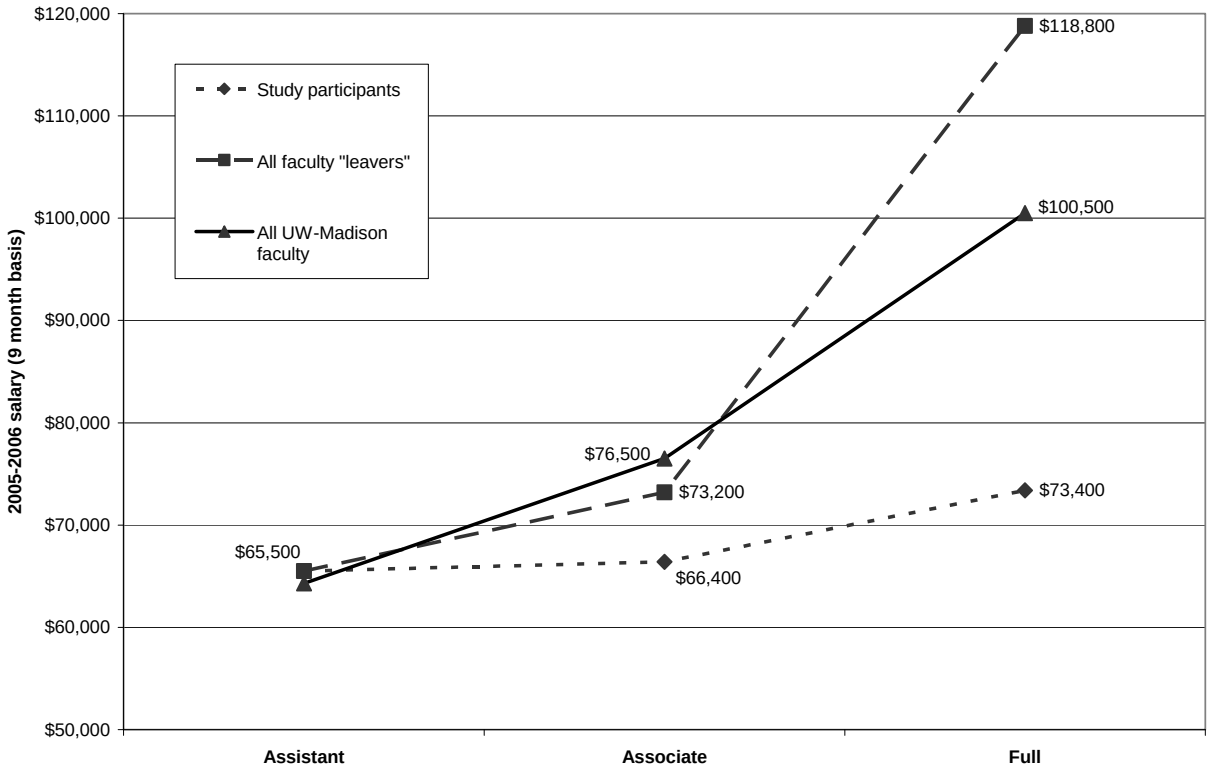

Figure 1: Salary comparison between UW-Madison faculty overall, all faculty "leavers" and 2006-2007 study participants.

Several study participants described demoralizing effect of these compensation practices. Brad explains:

> *My starting salary at Wisconsin was $50K even. My salary the year before I was tenured was $54-something. The letter that I got after getting tenured put my salary at $60-something and that same year they made an offer to a new assistant professor without competing offers at I think $69 or maybe $70 right. I mean that's 15% less than what you're giving to somebody who's a new Assistant. I understand the need to match other people's offers, but when you start giving offers like that to people who don't have competing offers, you're not going to create a particularly favorable attitude among those faculty members who feel like they would have options elsewhere.*

Luke had a similar experience:

> *My department voted to hire new people, they basically had to follow market logic, but of course there was tremendous salary compression for people that had already been hired. So, by the time I came up for tenure, I was already being paid substantially less than some of the first-year, incoming assistant professors…[the department chair] took me in his office and said, 'I want to talk about salary with you.' What's there to talk about? I know what the university's going to do… it's going to give me the minimum possible raise for tenure.*

Study participants described other efforts to address these salary disparities. They consistently reported that their department chair or "common knowledge" within the department informed them that seeking outside offers was the only means to redress salary compression. Mark built his career at UW-Madison with this in mind:

> *I realized this less than six months into my time at Wisconsin….The only way to get a market salary after you've been hired, is to get an outside offer….So that I knew, I had a plan quite honestly. That I would take the third year off to finish my book. I would finish my book, get my tenure. And then I would work my damndest to get an outside offer, even before I was ready to leave….It had nothing to do with leaving at the time. And I know there are some departments that actually encourage this…it's encouraged by the way the entire system is set up.*
>
> Interviewer: You knew that at some point you were going to do that but at that third year, you weren't interested in leaving?
>
> *No.*
>
> Interviewer: You were happy?
>
> *Yes, before I was truly interested in leaving…And that I was going to have to [seek outside offers] and of course once you do that, the risk of leaving increases even if you didn't think about it.*

Brad felt like he was "dared" to apply for other positions:

> *I don't know what the solution is given Madison's resource problems….you essentially feel like you're dared to go out on the job market. And I think that that's a hard position to dare people to go out on the job market and then not expect them to be enamored of the places where they go interview.*

Dawn approached her department after marrying another faculty member. She described what happened when asking for help:

> *He said there was nothing he could do for me. [My chair] actually told me to go on the market before they could make a retention package for me or a partner hire package for my husband.*
>
> Interviewer: He said to go out and get other offers and then he could help you?
>
> *Yes, exactly.*
>
> Interviewer: And you went and did that and then…
>
> *Then the other offers were much better!*

She goes on to explain her thoughts when after applying for other positions:

> *Since I went to Madison, half of my friends left. They could not afford to stay, the lack of raises was awful. The fact that you knew to get a raise you'd have to go on the market meant that when you go on the market you're going to have to sell yourself, which means you're halfway imagining yourself*

somewhere else anyway. So, the fact there was no such thing as preemptive retention really hurts UW. I know many people would have stayed if they just could have gotten some money. Like, the cost of living's going up a certain amount and your salary is not going up at all…And that's when I got five outside offers. And that's when it was pretty clear I was going to leave.

One faculty member called the policy of seeking outside offers "perverse" and was appalled that it was an accepted practice at UW-Madison.

As opposed to the 2006-2007 study, salaries and salary compression were rarely mentioned by the 2007-2008 participants and wanting a higher salary was never indicated as the primary reason why people left. Some participants did, however, mention disparities when describing their current positions. For example, one survey respondent wrote:

The salaries were startlingly low; UW matched my salary from [previous institution] but the cost of living in Madison was way higher than I had been led to expect and given the loss of my research budget and the augmented travel costs to travel from Madison for professional and personal reasons, I came out considerably behind financially. The salary on promotion to associate was not a substantial bump (my current salary is 40% higher than what I was receiving when I left UW).

Another respondent wrote:

Very low raises—sometimes no raises—is terrible for morale and for junior faculty. Deans were unresponsive to needs of talented, successful advanced junior faculty—they were too busy focusing on most senior faculty.

Similar to the previous year, the practice of getting outside offers was described. Anthony was told:

'You know the only way to get anything here is to go on the market.' And this was increasingly depressing and demoralizing because in a way none of us really wanted to be put through that. And if the compression had been less dramatic, the motivation for going on the market would have been correspondingly less high.

Interviewer: Do you remember from whom you got that message? Was it colleagues, your department chair, the dean's office?

Colleagues, the department chair, and I don't think in so many words it ever came from the dean's office because I think that no dean would want to say that explicitly, but that was the impression that one got in conversation. And it could have been something like this—a dean saying, 'We appreciate the fact that the salaries are low, but the pot that we have for regular salary increases is one half of a percent, whereas the pot that we have for retention is much higher.' That doesn't tell you go out and get an offer, but it sure suggests it. So, I think that that's probably what I recall.

One of the survey respondents provided insight and in this leaver's perspective, the formula for retention:

Four of the colleagues that I was closest to decided to leave at the beginning of my second year there, which was a significant factor in my decision to accept the outside offer. The main recruiting factor

for me was the colleagues I would have at UW. Retention is recruitment and retaining one helps retain others: if these colleagues had not been leaving, my decision to leave would have been much more difficult. The fact that people have to get outside offers to get an increase in their salary creates an incentive to leave: once you put one foot out the door, it's easy for the rest of the body to follow.

In general, salary issues appear to be of most concern to the associate or full professors who were interviewed, as opposed to the assistant faculty, whose concerns were more likely to be research and tenure-focused.

Summary

In summary, the two cohorts of faculty, thirty-five participants in this combined research report, shared some common experiences, yet made decisions based on their own unique situations. The commonalities are found in the overarching categories and sub-themes:

- **Balancing Professional and Personal Lives,** *as reflected in*
  - Respecting the Needs of their Immediate or Extended Family
  - Lack of Institutional Family-friendly Policies
- **Issues with Tenure and Promotion,** *as reflected in*
  - Ineffective Mentoring
  - Positions Misaligned with Tenure and Promotion Criteria
  - Research not Supported or Understood
- **Climate Issues,** *as reflected in*
  - Research Environment
  - Lack of Collegiality
  - Experiencing Discrimination, Harassment and other Behaviors
  - Lack of Recognition and Overall Morale
- **Financial Issues,** *as reflected in*
  - General Budgetary issues
  - The Financial Relationship between the State and the University
  - Salaries, Lack of Raises and Salary Compression

Many of the participants in this study knew they were unhappy or were considering leaving for at least a year before doing so. On average, the length between consideration and leaving was 2.35 years with a range of one to four years. The individuals who agreed to participate in the study hoped that their stories would initiate change and perhaps help faculty who are considering leaving. Recommendations and policy changes instigated by the administration and faculty members themselves could easily be implemented during any of those critical years for current or future faculty who are considering departure. Some of the recommendations noted in previous reports include:

- **Provide Assistant Professors with an environment that is encouraging and leads to their success.**
  - Delineate the criteria by which Assistant Professors will be evaluated for tenure.

- Make sure that new faculty's job positions are aligned with the criteria that will be used to evaluate them, especially when given responsibilities outside the norm or when they have joint appointments/departments.
- Ensure that new faculty's research agenda at the time of hire will lead to tenure.
- Provide new faculty with mentors and committees that are going to enhance their progress, not impede it.
- Decrease their teaching and service responsibilities as a means to jumpstart and sustain their research progress at critical points in their pre-tenure years.
- Communicate with divisional committees about cutting-edge research, methodologies, and areas of study to inform members of changes and growth in disciplines.

- **Provide Associate and Full Professors with an environment that encourages their retention and success.**
  - Develop and put into practice creative incentives to support faculty, such as: nominating faculty for awards, providing course buy-outs, providing extra TA or RA support during critical times, recognizing them publicly, allowing them a sabbatical leave, decreasing service or other departmental responsibilities.
  - Provide raises to ensure salary equity within departments and as a preventive attrition measure.
  - Treat faculty work equally, despite differences in research, teaching, service and outreach/extension responsibilities.
  - Highlight the local, national, and international success of faculty.

- **Address University and Department Climate Issues**
  - Ensure that sexual harassment and discrimination are handled appropriately and quickly. Provide a safe environment for the victims.
  - Understand the essential role that department chairs play in creating successful environments for faculty. Ensure that department chairs are capable of performing this critical position and are effective once in the position.

- **Understand the Important Need for Balance in the Professional and Personal Lives of Faculty**
  - Create and communicate dual-career programs that are available to new and continuing faculty.
  - Identify conventions, practices and policies that privilege traditional family norms and values within the University or departments. Ensure that no faculty members are isolated or excluded due to these practices.

At the same time, not every faculty member felt that 100% retention should be the goal of UW-Madison administration. Approximately 25% of the participants described how the perfect combination of opportunity and dissatisfaction caused them to leave, and had no regrets about doing so. Despite individual differences seen among these faculty members,

general suggestions from the participants themselves are essential for a dialogue about changing the traditions, practices and policies at UW-Madison to retain a greater number of faculty members.

Appendix A: Faculty Attrition Study Interview Protocol

1. Describe your experience in your former department/center/institute. Best things, worst things.
2. Describe your experience at UW-Madison, overall. Best things, worst things.
3. How satisfied were you with the following aspects of UW-Madison?

	Very Satisfied	Somewhat satisfied	Not at all satisfied*	Doesn't Apply
a. Orientation to the UW	❑	❑	❑	❑
b. Orientation to your department	❑	❑	❑	❑
c. Tenure & promotion mentoring committee	❑	❑	❑	❑
d. Evaluations from mentoring committee	❑	❑	❑	❑
e. Collegiality of others in department	❑	❑	❑	❑
f. Your department chair	❑	❑	❑	❑
g. Benefits	❑	❑	❑	❑
h. Salary	❑	❑	❑	❑
i. Treatment of you (fairly, equitably)	❑	❑	❑	❑
j. Support of your research interests/field	❑	❑	❑	❑
k. Informal mentoring and guidance	❑	❑	❑	❑
l. Resources to perform your job	❑	❑	❑	❑
m. Connectedness to others (isolated?)	❑	❑	❑	❑
n. Balance between work and home	❑	❑	❑	❑
o. Opportunities for spouse/partner	❑	❑	❑	❑
Other:	❑	❑	❑	❑

*Responses of "Not at all satisfied" require further explanation:

4. Why did you leave/retire from the UW? What are the primary reasons? Secondary reasons?

Questions 5-8 are asked of people who left mid-career.

5. In your opinion, is there anything about you personally, that may have been a factor in your experience at or decision to leave the UW? For example,

Personal Attributes:	Yes	No	Explanation
a. Age	❑	❑	
b. Gender	❑	❑	
c. Sexual orientation	❑	❑	
d. Marital status	❑	❑	
e. Family status/responsibilities	❑	❑	
f. Race	❑	❑	
g. Ethnicity	❑	❑	
h. Disability	❑	❑	
i. Religion	❑	❑	
Other:	❑	❑	

6. At what point did you know that you were unhappy or wanted to leave?

7. Were you encouraged to leave by someone at the UW? Did another institution or company approach you and encourage you to apply for a different position? Please explain.
8. Did you talk to anyone about your desire or decision to leave? What was his/her response?
9. Did you have any concerns when you originally accepted the position at UW? If yes, what were they? Were these concerns realized?
10. What types of things could the UW have done to improve your experience? What could your department have done?
11. Would you recommend others to apply to or accept a job at the UW? In your department? Why or why not?
12. What are you currently doing? Where are you currently working?
13. What is different in your current job as compared to the one you had at UW?
14. If I were to ask someone in your department about why you left, what would s/he say?

Endnotes

[i] O'Connell, K., Pribbenow, C.M., & Benting, D. (2006). *The climate at the University of Wisconsin – Madison: Begins sunny and warm, ends chilly*. Madison, WI: The Women in Science and Engineering Leadership Institute.
[ii] Six faculty were not contacted at the request of the Provost's office.
[iii] This study was approved by the Social & Behavioral Sciences Institutional Review Board, SE-2007-0242.
[iv] http://www.provost.wisc.edu/memos/exit.html
[v] http://www.provost.wisc.edu/memos/exit.html
[vi] This study was approved by the Social & Behavioral Sciences Institutional Review Board, SE-2007-0242, and was modified and re-approved to include retirees as subjects in subsequent years.
[vii] http://www.provost.wisc.edu/memos/exit.html
[viii] http://classifications.carnegiefoundation.org/lookup_listings/institution.php; The Carnegie Foundation for the Advancement of Teaching Institutional Classification System.
[ix] Pseudonyms are used to maintain anonymity.
[x] Mooney, C.J. (1991). Eight professors at FIU file age-bias grievance to protest 'salary-compression' practice. *The Chronicle of Higher Education, 37*(27), p. A17.