

ADVANCE

Year End Report
January 1, 2002-December 31, 2002

Lisa M. Frehill, PI
Leroy Daugherty, Co-PI
Richard Hills, Co-PI
Christine Marlow, Co-PI
Kenneth Paap, Co-PI

Pamela Hunt, Program Coordinator
Nichol Fuchs, Graduate Assistant (ending August 2002)
Jammie Benton-Speyer, Graduate Assistant

PARTICIPANTS

Program Personnel

Lisa M. Frehill, PI, Associate Professor, Department of Sociology and Anthropology
Principal Investigator is responsible for all aspects of ADVANCE. The PI oversees all program activity, participates in and supports programs of all ADVANCE committees, conducts institutional self-study, and supervises program coordinator and graduate student. The PI serves as chair of the Committee on the Status of Women in SME. Since March, 2001, the PI has facilitated collaboration among the members of the Committee and SME faculty, in general to establish the program.

Pamela Hunt, Program Coordinator (started 3/02)

Program Coordinator facilitates and coordinates work of the Committee on the Status of Women in Science, Mathematics and Engineering and its subcommittees by: gathering institutional data and other information and providing logistical support; organizing workshops for faculty and students; coordinating with other relevant programs on campus on annual events; facilitating communication among faculty staff and administrators; maintaining website; producing program brochures/flyers; monitoring budget; writing annual reports.

Nicole M. Fuchs, Graduate Assistant (1/02-8/02)

Graduate Research Assistant supported program coordination, assisted in data collection and analysis.

Jammie Benton-Speyer, Graduate Assistant (9/02-12/02)

Assists with on-going internal data collection and analysis, including workshop evaluation and reporting.

Richard Hills, Co-PI, Associate Dean, College of Engineering

Administration of program. Serves on the Committee on the Status of Women in SME and the Research Subcommittee.

Kenneth Paap, Co-PI, Associate Dean, College of Arts and Sciences

Administration of program. Serves on the Committee on the Status of Women in SME and the Research Subcommittee.

Miley Gonzalez, Co-PI, Interim Vice Provost for Research (1/02-6/02)

Administration of program. Serves on the Committee on the Status of Women in SME.

Leroy Daugherty, Co-PI, Associate Dean, College of Agriculture and Director, Agricultural Experiment Station (7/02-12/02)

Administration of program. Serves on the Committee on the Status of Women in SME and the Recruitment Subcommittee.

Christine Marlow, Co-PI, Associate Dean, Graduate School
Administration of program. (On sabbatical Spring 2002.)

Members, Committee of the Status of Women in SME

In addition to the above listed program personnel, participants served on the Committee on the Status of Women in SME. Each committee member attends meetings of the committee and serves on one of the four subcommittees.

Laurie Churchill, Program Coordinator, New Mexico Alliance for Graduate Education and the Professoriate (NM-AGEP)

Sonya Cooper, Associate Professor, Engineering Technology

Leroy Daugherty, Associate Dean, College of Agriculture and Home Economics and Director, Agricultural Experiment Station

Champa Gopalan, Professor, Agronomy and Horticulture

Roger Hartley, Academic Department Head, Computer Science

Laura Huenneke, Academic Department Head, Biology

Patricia Hynes, Project Director, NM Space Grant

Colleen Jonsson, Associate Professor, Chemistry and Biochemistry

Steven Loring, Administrative Analyst, Agricultural Experiment Station

Bahram Nassersharif, Academic Department Head, Mechanical Engineering

Linda Riley, Associate Academic Department Head, Industrial Engineering

Janet Tanski, Associate Professor, Economics

Ann Vail, Academic Department Head, Family and Consumer Sciences

Mark Wise, Academic Department Head, Animal and Range Sciences

Subcommittees

Recruitment

Chair, Linda Riley, Associate Academic Department Head, Industrial Engineering

Roger Hartley, Academic Department Head, Computer Science

Colleen Jonsson, Associate Professor, Chemistry and Biochemistry

Tammy May, Associate Professor, Animal and Range Sciences (1/02-6/02)

Bahram Nassersharif Academic Department Head, Mechanical Engineering

Research

Chair, Patricia Hynes, Project Director, NM Space Grant

Josefina Alvarez, Professor, Mathematical Sciences (1/02-6/02)

Tiziana Giorgi, Assistant Professor, Mathematical Sciences (started 8/02)

Champa Gopalan, Professor, Agronomy and Horticulture

Richard Hills, Associate Dean and Director, Engineering Research Center

Kenneth Paap, Associate Dean and Director, Arts and Sciences

Mark Wise, Academic Department Head, Animal and Range Sciences

Distinguished Visiting Professor

Chair, Ann Vail, Academic Department Head, Family and Consumer Sciences

Sarah Harcum, Associate Professor, Chemical Engineering (1/02-6/02)

Steven Loring, Administrative Analyst, Agricultural Experiment Station

Stuart Munson-McGee Professor, Chemical Engineering

Tracy Sterling, Professor, Entomology, Plant Pathology and Weed Science (started 10/02)

Faculty Development

Chair, Laura Huenneke, Academic Department Head, Biology

Laurie Churchill, Program Coordinator, Graduate School

Sonya Cooper, Associate Professor, Engineering Technology

Christine Marlow, Associate Dean, Graduate School

Mark Wise, Academic Department Head, Animal and Range Sciences

Participants' Summary

Thirty-three of the 41 female STEM faculty members (80%) were involved in some aspect of the ADVANCE program during its inaugural year. All 19 STEM department heads and almost all NMSU department heads participated in ADVANCE-Sponsored programming that was part of a full day of department head workshops. The two evaluators met with 49 different people at NMSU to discuss ADVANCE. In addition, ADVANCE programming reached 77 faculty members from across the university via a Promotion and Tenure Workshop and all NMSU Deans learned of the ADVANCE program when they met with the PI, who solicited their input for a Dual Career Couple Program at NMSU. Other outreach efforts, especially those associated with Distinguished Visiting Professors' programming, reached undergraduate and graduate students in STEM, K-12 teachers in the community, and other members of the Las Cruces community with various educational programs.

Other Specific People Not Listed:

Dr. Miriam Meyer, Director, Institutional Research and Planning, provided most of the institutional data required for this report. She was assisted by Dr. Judy Bosland. Drs. Meyer and Bosland will work with ADVANCE Committee members on a university-wide faculty gender equity in pay study next semester.

Dr. Cinda Clary, Interim Associate Dean, College of Agriculture and Home Economics, serves as a member of an ad hoc committee developing procedures for exit interviews of STEM faculty who leave NMSU.

Dr. Michael Johnson, Professor, Chemistry and Biochemistry, hosted a distinguished visiting professor (Dr. Debbie Crans). He will serve on the Distinguished Visiting Professor subcommittee.

Dr. Tracy Sterling, Professor, Entomology, Plant Pathology and Weed Science, hosted Dr. Deanna Namuth's visit as a distinguished visiting professor. She will serve on the Distinguished Visiting Professor subcommittee.

Dr. Tiziana Giorgi, Assistant Professor of Mathematical Sciences, replaced Dr. Josephina Alvarez on the Research Subcommittee in 10/02.

Two external evaluators were contracted by ADVANCE:

Dr. Ann Austin, Professor, Higher, Adult, and Lifelong Education, Michigan State University. (Recommended by Patricia Rankin, Program Director of ADVANCE at University of Colorado at Boulder.)

Dr. Laura Kramer, Professor, Sociology, Montclair State University.

ACTIVITIES AND FINDINGS

Overview

ADVANCE activities are administered through a Committee on the Status of Women in SME NMSU. The PI, Co-PIs, faculty from each of the three colleges involved in ADVANCE (Agriculture and Home Economics, Arts and Sciences, and Engineering) and three program directors from related NMSU programs work on this Committee and its four subcommittees. The four subcommittees manage the various programmatic elements and include several faculty members beyond those who work on the main Committee on the Status of Women in SME.

The *Committee on the Status of Women in SME* engages primarily in outreach activities, but is also responsible for coordinating the annual research report on the status of women in SME at NMSU. The report will form the basis for subsequent programming to address gender disparities in SME at NMSU. The Committee hired a Program Coordinator (started 2/27/02) and the Graduate Assistant (started 1/2/02); issued four press releases about the program and formed and set budgets for the four subcommittees. The Committee held six meetings between December 2001 and December 2002.

The Recruitment Subcommittee is involved with in outreach, research, and training and development activities. This committee met seven times. The Faculty Development Subcommittee (4 meetings) is involved with outreach and training and development activities. The Research Subcommittee met six times to administer a program of grants to existing female SME faculty for research and travel within their disciplines. And the Distinguished Visiting Professor Subcommittee, which met three times, administers another research-related activity that involved a strong outreach component and makes women scientists more visible.

An ad-hoc committee of the recruitment committee to develop a procedure for exit interviews was formed.

A. RESEARCH AND EDUCATION ACTIVITIES

1. Committee on the Status of Women in SME (CSW-SME)

- Self-study of the status of women in SME in progress:
 - Data obtained from Institutional Research and Planning.
 - Data obtained on Space Allocation from Facilities Space Management (but not yet analyzed).
 - Copies of Letters of Offer provided to the Committee by the Colleges of Engineering and Arts and Sciences.
 - Data for the NSF annual report were compiled and discussed at the final annual meeting.

- Committee compared climate instrumentation and decided to administer a modified version of the University of Michigan instrument to STEM faculty in the Spring, 2003 semester.
- Formed ad hoc committee to conduct exit interviews.
 - Members: Cinda Clary (Interim Associate Dean, College of Agriculture and Home Economics), Laura Huenneke, Sonya Cooper, Linda Riley, and Lisa Frehill served on this committee.
 - Interview protocol was developed and discussed with the Director of Personnel.
- Ad hoc Committee on Pay Equity formed.
 - Members: Lisa Frehill, Ken Paap, Pat Hynes, and Leroy Daugherty.
 - Additional members will include: Miriam Meyer (Director, Institutional Research and Planning), Judy Bosland (Institutional Research), Robert Howell (Director of Personnel), Meg Haynes (Personnel).
 - Preliminary salary data provided by Institutional Research and Planning—full study will begin Spring, 2003.
 - Scope defined: all NMSU faculty.
 - American Association of University Professors' publication, "Paychecks: A Guide to Conducting Salary-Equity Studies for Higher Education Faculty" reviewed by CSW-SME members.

2. Recruitment Subcommittee

- Distributed and compiled information from Department Head Recruitment Survey. The Program Coordinator followed up on Department Head Recruitment Survey with individual meetings with department heads.
- Organized and presented a 4-hour Recruitment Workshop for STEM search committee members.
- Crafted a general advertisement about NMSU to place in outlets not often used by STEM departments at NMSU due to cost. These included: *Science*, *AWIS Magazine*, *Hispanic Outlook in Higher Education*, *Black Issues in Higher Education*, and the *Chronicle of Higher Education*.
- PI Frehill or Committee Chair Riley met with most female STEM job candidates who visited campus during the Spring 2002 semester and with potential candidates during Fall, 2002.
- Distributed start-up package enhancements to the following, all of whom were hired during the Spring, 2002 semester as tenure-track assistant professors:

Paola Bandini (Civil and Geological Engineering)
Jeanine Cooke (an AGEF Fellow, Electrical and Computer Engineering)
Jing He (Computer Science)
Tiziana Giorgi (Mathematical Sciences)
Inna Pivkina (Computer Science)

3. Research Subcommittee

- Application forms and procedures for research awards established to administer program.
- 25 applications from 16 SME women faculty were received, of those, 21 awards totaling \$182,982 were won by the following 13 recipients:

Laurie Abbott, Assistant Professor, Animal and Range Sciences – a total of \$7,646: \$7,070 for rangeland vegetation studies at remote locations in New Mexico; and \$576 for research travel.

Patricia Baggett, Professor, Mathematical Sciences – \$19,642 for expanding a program of partnership mathematics courses through web development and grant preparation.

Rebecca Creamer, Assistant Professor, Entomology, Plant Pathology and Weed Science – a total of \$18,230: \$17,000 for a study of the association of a fungal endophyte; and \$1,230 for conference travel.

Martha Desmond, Assistant Professor, Fishery and Wildlife Sciences – a total of \$16,243: \$14,292 for release time for manuscript preparation: *Ecoregional Study of Wintering Grassland Birds in the Chihuahuan Desert*; and \$1,951 for travel for a related conference presentation.

Nancy Flores, Assistant Professor, Extension Home Economics – a total of \$3,341: \$2,141 for travel to a conference and continuing education program; and \$1,200 for bringing Professor Hildegard G. Heymann to the NMSU Campus.

Mai Gehrke, Professor, Mathematical Sciences – \$18,180 for work on a book on canonical extensions.

Colleen Jonsson, Associate Professor, Chemistry and Biochemistry – a total of \$17,780: \$15,515 for studies of the function of hantavirus N protein; and \$2,265 for travel to a week-long fluorescent spectroscopy workshop.

Lisa McKee, Associate Professor, Family and Consumer Sciences – a total of \$19,137: \$16,996 for a study of consumer rinsing methods for reducing microbial loads in pork chops; and \$2,141 for conference and continuing education travel.

Michele Nishiguchi, Assistant Professor, Biology – a total of \$13,304: \$10,904 for a study of environmental and ecological monitoring of symbiotic vibrio populations; and \$2,400 for related travel.

Jane Pierce, Assistant Professor, NMSU/Artesia Agricultural Science Center – \$11,000 for a study of biological control of pecan/alfalfa cropping systems.

Linda Riley, Associate Academic Department Head, Industrial Engineering –\$20,000 for the establishment of the Advanced Simulation and Modeling Laboratory.

Susana Salamanca-Riba, Associate Professor, Mathematical Sciences – a total of \$15,196: \$12,296 for a study of automorphic forms and representation theory; and \$2,900 for related conference presentations.

Tracy Sterling, Professor, Entomology, Plant Pathology and Weed Science – \$3,283 for travel to receive instrument training and to collaborate on current and future distance education grants on improvements in the area of weed physiology.

- 23 applications from 17 women were received. Of these, 5 research awards were made and 9 travel awards were made for a total of \$83,547 of funds distributed for the 2003 calendar year. The following faculty received awards:

Laurie Abbot, Assistant Professor, Animal and Range Sciences – \$6,895.00 for “Rangeland Restoration Using a Process-Oriented Approach.”

Jeanine Cook, Assistant Professor, Electrical and Chemical Engineering - \$15,000.00 for the “Expansion of the Advanced Computer Architecture Performance and Stimulation Laboratory.”

Elizabeth Gasparim, Assistant Professor, Mathematics - \$15,000.00 for “Topology of Moduli of Vector Bundles.”

Graciela Unguez, Assistant Professor, Biology - \$15,000.00 for “Investigation of the Molecular Mechanisms of Tissue Regeneration in Vertebrates.”

Nicole Vogt, Assistant Professor, Astronomy - \$14,564.00 for “Transformation of Spiral Galaxies.”

Paola Bandini, Assistant Professor – Chemical and Geological Engineering - \$14,564.00 for travel to geotechnical research facilities at Purdue and US Army Corps of Engineers, and to visit NSF headquarters.

Martha Desmond, Assistant Professor, Fishery and Wildlife Sciences – \$2,640.00 for “Influence of Seed Production and Habitat Associations on a Chihuahua Desert Avifauna.”

Nancy Flores, Assistant Professor, Food and Consumer Sciences - \$1,725.00 travel to attend an American Institute of Baking Workshop on gourmet cookie production.

Mai Gehrke, Professor, Mathematics - \$1,196.00 travel to participate in a panel for the Association for Women in Mathematics Workshop.

Jing He, Assistant Professor, Computer Science – \$2,000 for “Structural and Functional Mining of Hantavirus Protein RdRp Using Current Computational Tools.”

Michele Nishiguchi, Assistant Professor, Biology - \$2,500 for “Evolutionary Dynamics of a Sepiloid Squid-Vibrio Mutualism.”

Jane Pierce, Assistant Professor, Entomology, Plant Pathology and Weed Science - \$1,618 for “Biological Control in Pecan/Alfalfa Cropping Systems.”

Jill Schroeder, Professor, Entomology, Plant Pathology and Weed Science – 1,283 for “Impact of Crop Pests and Their Management of Weeds.”

Nicole Vogt, Assistant Professor, Astronomy - \$1,731 for “Transformation of Spiral Galaxies.”

- Research Committee scope was expanded as plans to professionally develop, in cooperation with relevant STEM departments, full-time “college track” women for tenure-track jobs were established. College track faculty at NMSU teach a heavier teaching load, the positions are considered “permanent,” with the possibility of promotion to higher rank (e.g., college associate or college full professor).

4. Distinguished Visiting Professor Subcommittee

- Application forms and procedures developed to administer the program.
- Arranged visit on October 14-19, 2002 by Dr. Deana Namuth from University of Nebraska (genetics education programs) to work with NMSU scholars and local middle and high school students. The visit was hosted by Dr. Tracy Sterling, Professor, Entomology, Plant Pathology, and Weed Science.
- Arranged visit on December 3-6, 2002 by Dr. Debbie Crans from Colorado State University (Chemistry Department). The visit was hosted by Dr. Michael Johnson, Associate Professor and Associate Department Head of Chemistry and Biochemistry.
- Planned visit for April 28-May 2, 2003 by Dr. Sheila McIlraith of the Knowledge Systems Laboratory, Stanford University. Dr. Son Cao Tran, Assistant Professor of Computer Science, will host Dr. McIlraith's visit.

5. Faculty Development Subcommittee

- Mentoring Program established.
- Four-hour Mentoring Workshop held on September 14, 2002. Dr. Lindsey Stoddard-Cameron (University of Wisconsin at Madison) facilitated the workshop, which was attended by 28 people.
- Participation in the University's first Department Head Training workshop—Lakesia Johnson sponsored to discuss "Diversity and Hiring."
- Co-sponsored (with the Hispanic Caucus and the Provost's Office) and evaluated a Promotion and Tenure Workshop on September 21, 2002.
- PI and Committee Members are working with the new NMSU Teaching Academy, the Hispanic Caucus, the Provost's Office, and the newly-established university Roles and Rewards Committee on an on-going basis.

B. FINDINGS

Tables reporting data about the status of women in STEM at NMSU are included in Appendix A. General findings from these tables:

- Like other research extensive universities nationwide, women account for 31 percent of NMSU's tenure and tenure track faculty but 57 percent of temporary, non-tenure-track faculty. (Table 1)
- Women constitute 41 percent of SBS tenure and tenure-track faculty at NMSU but only 18 percent of comparable STEM faculty. (Table 2)
- While women account for only one in four temporary/non-tenure track faculty in the SBS disciplines, they account for nearly two in three such faculty in the STEM fields. (Table 2)
- The number of women STEM faculty increased by about 20 percent since 1995. (Table 3)
- Between 1995-1999 there was a net increase of 8 women in STEM disciplines (from 34 to 42 women). After the start of a wave of retirements in 1999, the number of women faculty in 2002 was 41, which includes one woman who is expected to leave within the next academic year. (Table 3)
- As is the case nationwide, women are unevenly distributed among the STEM departments at NMSU. (Table 3A)
 - Women accounted for 88 percent of the members of the Family and Consumer Sciences Department, a third of those in the Geological Sciences Department and 30 percent of those in both Mathematical Sciences and in Entomology, Plant Pathology and Weed Sciences.
 - Eight of the 19 departments had only one female faculty member (Animal and Range Science, Fishery and Wildlife Science, Astronomy, Chemistry and Biochemistry, Physics, Electrical and Computer Engineering, and Industrial Engineering).
 - Two departments (Mechanical Engineering and Survey Engineering) had no female faculty members.
- Use of full time, non-tenure track faculty (called college track at NMSU) varies substantially across the STEM departments. There are few such faculty in the College of Agriculture and Home Economics (one woman in Family and Consumer Sciences) and in the College of Engineering (a total of five, one woman). The College of Arts and Sciences, in which many of the university's general education classes are taught had 25 such faculty, of whom 17 (68 percent) were women. (Tables 3B and 3C)
- Within both the SBS and STEM departments, women are concentrated on the lowest rungs of the ladder:
 - While 37 percent of women STEM faculty were untenured assistant professors, only 27 percent of men STEM faculty were in similar rank and tenure positions.

- While 37 percent of STEM faculty men were tenured full professors, 32 percent of female STEM faculty were on the top rung of the rank and tenure ladder.
 - These differences were even more pronounced in the SBS disciplines, where only 14 percent of SBS faculty women were tenured full professors versus 40 percent of men in these six fields. 43 percent of women in SBS were in tenure-track, assistant professor positions.
- White males account for two-thirds of all STEM and just over one-half of SBS tenured and tenure-track faculty. White females account for another 12.5% of STEM tenured and tenure track faculty but are one-third of SBS faculty. (Table 5)
- Asian males account for 9% of STEM faculty but Asian females account for only 2.6% of STEM faculty. There is only one Asian tenured or tenure track faculty member in the SBS disciplines. (Table 5)
- Only 4 (1.7%) of STEM faculty were Hispanic women and 13 (5.6%) were Hispanic men. This is quite different than the NMSU student body in which Hispanic students account for 41% of undergraduate students. (Table 5)
- Minority representation is not much better in the SBS disciplines. There are 2 Hispanic females and 2 Hispanic males (7.8% combined) in tenure track or tenured positions in the 6 SBS departments. (Table 5)
- Among STEM assistant professor cohorts, women were twice as likely as men to leave NMSU. By 2002, 14.3% of women but only 7.9% of men hired as assistant professors between 1995-2002 had left NMSU by 2002. (Table 6A)
- Among SBS assistant professor cohorts, men were twice as likely as women to leave the institution. Between 1995-2002 6 of 13 men hired as assistant professors in SBS left versus only 3 of the 13 women hired in that same period. (Table 6B)
- Women in associate professor STEM 1995-2002 cohorts were twice as likely as men to be promoted to full professor by 2002 but were also more than two times as likely as men to leave the institution. (Table 7A)
- Regarding attrition of STEM women at the mid-career level, two associate professor cohorts merit specific attention.
 - Of the 4 women who were associate professors in 1998, 2 (50%) had left NMSU and one (25%) had been promoted to full professor by 2002. None of the 8 male associate professors left and only one (12.5%) had been promoted. (Table 7A)
 - Of the three women in the 2000 STEM associate professor cohort, 2 had left and the one that remained had already been promoted to full professor

by 2002. None of the 9 male STEM associate professors in this cohort had left and only one had been promoted to full professor by 2002. (Table 7A)

- Women who achieved the rank of associate professor in SBS disciplines during the 1995-2002 period were less likely than men to have been promoted to full professor by 2002, but only one of the 7 women had left the institution. (Table 7B)
- Gender gaps in age, overall years of experience and time to tenure were generally larger among the SBS tenured and tenure track faculty than they were among the STEM faculty. (Table 8)
- Tenured and tenure track women in STEM were, on average, two years younger, had four fewer years of experience, and had been at NMSU for three years less than their male counterparts but there was no sex difference in the time to tenure for STEM faculty. (Table 8)
- Sex gaps in pay were larger in the SBS fields than in the STEM fields. STEM faculty women earned an average of \$0.94 for every dollar the average male STEM faculty earned but, on average, SBS women earned only \$0.84 for every dollar earned by the average SBS man. (Table 9)
- Sex gaps in pay varied by rank. Within the STEM fields the sex gap in pay widened as rank increased. (Table 9)
 - At the assistant professor level, STEM women earned nearly as much as STEM men (ratio was only 0.983).
 - Among the 84 full professors, women earned on average \$0.93 for every dollar men earned.
- While the sex gap in pay increased for associate professors within the SBS fields, the three female SBS full professors' salaries were much higher than those of their male counterparts. (Table 9)
- Non-contract SBS female faculty, despite being almost 8 years older with 11 more years of experience and being at NMSU for six more years made substantially less than their male counterparts. (Table 10)
- Non-contract female and male STEM faculty had only slight differences in age, years of experience and time at NMSU: women were slightly younger, had been at NMSU just over a year longer and had about three more years of experience than their male counterparts. (Table 10)

- In the case of STEM non-contract faculty, the sex gap in pay was fairly small. Women's median earnings were actually \$158.80 per month higher than those of men. (Table 10)
- Although women account for relatively few of the academic leadership, recent hires at the university have increased women's representation in top leadership positions. Women now account for two of three vice provosts and for two of the five vice president/provosts. (Table 11)
- There was only one woman among the 6 Regents' Professors (a new program in 2002) and only one STEM faculty member (male). (Table 12)
- The College of Agriculture and Home Economics has the best record among the three colleges in terms of women's representation on the college-level tenure and promotion committee. For the past several years, the five-member committee has had two women. The College of Arts and Sciences has had only one woman among the six members of its committee. With only one full professor female in the entire college, it is not surprising that the College of Engineering has not had a female on its 6-7-member promotion and tenure committee in the past six academic years. (Table 13)
- Comparable male and female STEM candidates hired by the College of Engineering and the College of Arts and Sciences between 1995-2002 received different starting salaries and start-up packages. The estimated dollar value of moving expenses was greater for men but women received more funds for research support. (Table 14).
- The average starting salary for the three new women hired by the engineering college between 1995-2002 was greater than the average among the 17 men hired in the same period. (Table 14)
- In the College of Arts and Sciences, men garnered higher average starting salaries than did women in the STEM fields. (Table 14)
- In both the College of Engineering and the College of Arts and Sciences, men were given more years credit towards tenure at the time of hire than were women. (Table 15)
- Almost all of the newly hired faculty in both the College of Engineering and the College of Arts and Sciences were hired as assistant, tenure-track professors. (Table 15)

C. TRAINING AND DEVELOPMENT ACTIVITIES

1. Recruitment Subcommittee

- Recruitment Workshop for faculty search committee members, September 6, 2002.
- Attended by 19 faculty, 15 of which were from 10 of our 19 STEM departments.
- Very favorable evaluation by participants.

2. Faculty Development Subcommittee

- Organized mentoring workshop and luncheon held September 14, 2002, a half-day orientation workshop led by Lindsey Stoddard Cameron, coordinator of the Women Faculty Mentoring Program at University of Wisconsin at Madison.
- Planned August 12, 2002 diversity workshop as part of the Provost's department head training. ADVANCE identified, recruited, and funded Lakesia Johnson of Denison University to lead this workshop.
- Provided support for a Time Management Workshop, to be run in conjunction with NMSU's new Teaching Academy on February 14, 2003.
- Co-sponsored a Promotion and Tenure Workshop with the Hispanic Caucus and the Provost's Office.
- Mentoring Program Participants: the Program Coordinator collected and compiled information about each participant, "matched" mentors and protégés in consultation with the Faculty Development Committee Chair and the PI, and contacted each participant to discuss the mentoring program. Criteria in matching mentors and protégés included gender (at faculty request) and general disciplinary area (e.g., a life scientist from Biology would be paired with a life scientist in Agronomy and Horticulture). The matching process will be modified. The participants are (mentors: M, protégés: P. Some people who are being mentored are also mentoring a more junior faculty member):

Laurie Abbott, Assistant Professor, Animal and Range Science (P)

Josefina Alvarez, Professor, Mathematical Sciences (M)

Paola Bandini, Assistant Professor, Civil and Geological
Engineering (P)

Devah Borah, Assistant Professor, Electrical and Computer
Engineering (P)

James Botsford, Professor, Biology (M)

Donald Caccamise, Academic Department Head, Fishery and Wildlife Science (M)

Joe Cecil, Assistant Professor, Industrial Engineering (P)

Jeanine Cooke, Assistant Professor, Electrical and Computer Engineering (P)

Rebecca Creamer, Assistant Professor, Entomology, Plant Pathology and Weed Science (P)

Martha Desmond, Assistant Professor, Fisheries and Wildlife Science (P)

Nancy Flores, Assistant Professor, Extension Home Economics (P)

Elizabeth Gasparim, Assistant Professor, Mathematical Sciences (P)

Tiziana Giorgi, Assistant Professor, Mathematical Sciences (P)

Wendy Hamilton, Department Head, Cooperative Extension Service (M)

Jing He, Assistant Professor, Computer Science (P)

Laura Huenneke, Academic Department Head, Biology (M)

Colleen Jonsson, Associate Professor, Chemistry and Biochemistry (M)

Douglas Kurtz, Professor, Mathematical Sciences (M)

Gerald Lodder, Associate, Professor, Mathematical Sciences (M)

Tammy May, Associate Professor, Animal and Range Science (M)

Nancy McMillan, Associate Professor Geological Sciences (M, P)

Martha Mitchell, Assistant Professor, Chemical Engineering (P)

Patrick Morandi, Professor, Mathematical Sciences (M)

Michele Nishiguchi, Assistant Professor, Biology (P)

Mary O'Connell, Professor, Agronomy and Horticulture (M)

Edward Pines, Academic Department Head, Industrial Engineering (M)

Inna Pivkina, Assistant Professor, Computer Science (P)

Enrico Pontelli, Associate Professor, Computer Science (P)

Gary Rayson, Associate Professor, Chemistry and Biochemistry (M)

Timothy Ross, Assistant Academic Department Head, Animal and Range Science (M)

Susana Salamanca-Riba, Associate Professor, Mathematical Sciences (P)

Jill Schroeder, Professor, Entomology, Plant Pathology and Weed Science (M)

Tracy Sterling, Professor, Entomology, Plant Pathology and Weed Science (M, P)

Irena Swanson, Associate Professor, Mathematical Sciences (on sabbatical, M)

Jack Thomas, Professor, Animal and Range Science (M)

April Ulery, Assistant Professor, Agronomy and Horticulture (P)

Graciela Unguez, Assistant Professor, Biology (P)

Ann Vail, Academic Department Head, Family and Consumer Science (M)

D. OUTREACH ACTIVITIES

1. Committee on the Status of Women in SME

- PI met with all STEM department heads to discuss program November 2001 – February 2002.
- PI and Program Coordinator attended the NSF ADVANCE Principal Investigators' meeting, April 22-23, 2002.
- Reception at President Gouge's house on May 9, 2002: attendance included all SME department heads, program personnel, Committee on the Status of Women in SME members, and the Regents for NMSU.
- Program personnel have become involved in other transformative activities at NMSU. PI is involved in the Teaching Academy Planning Committee, the Women's Studies Steering Committee, and chairs a university-wide Committee on the Status of Women; the Program Coordinator is a member of the Campus Childcare Advisory Board.
- Funded SME women's attendance at the New Mexico Women's Studies Conference (March 2002 in Albuquerque, NM): Colleen Jonsson, Associate Professor, Chemistry and Biochemistry; Ramona Parra, Specialist I, SWAT Lab (and a NM-AGEP Scholar); Graciela Unguez, Assistant Professor, Biology.
- PI organized and presented information about ADVANCE at the New Mexico Women's Studies Conference, Albuquerque, NM, March 8-9, 2002.
- PI and Program Coordinator attended the Women in Engineering Program and Advocates' Network Conference in San Juan, Puerto Rico, June 8-11, 2002. PI organized and moderated a session about ADVANCE programs. The Program Coordinator presented a poster about the program.
- Program Coordinator attended the International Conference for Women in Engineering and Science Conference, July 27-31, 2002 in Ottawa, Ontario.

- PI organized a session about ADVANCE at the NM-AGEP Conference, Albuquerque, NM, September 12-13, 2002. Session included presentations by the PI, Program Coordinator, and Patricia Baggett, Professor of Mathematical Sciences and recipient of an ADVANCE research award.
- PI and Program Coordinator presented separate papers at the NSF funded conference “Retaining Women in Early SMET Careers” October 17-20, at Iowa State University, Ames, IA. Co-PI Marlow and Dr. Laurie Churchill (member, CSW-SME and Program Coordinator for NM-AGEP) also attended the conference. Papers presented: Frehill: “Building bridges between personal narratives and institutional practices: Gender equity in higher education” and Hunt: “The NSF-funded ADVANCE: Institutional Transformation program at New Mexico State University.”
- PI prepared “Proposal: NMSU Dual Career Couple Program” at the request of the Provost. The proposal involved meeting with the Provost and the new Vice Provost for Research, all eight of NMSU’s deans, professional staff members in the Personnel Department and Career and Placement Services, and communication with the 19 ADVANCE department heads and members of the CSW-SME. The proposal includes a proposed dual career couple policy statement, a program modeled on existing programs at other universities, and ADVANCE commitment to compiling and distributing a brochure about the program and to organizing and sponsoring training for NMSU department heads and search committee members about the new program and policy.
- PI, Co-PI Marlow, Program Coordinator, and Sonya Cooper (member, CSW-SME) are working with a cross-disciplinary team to draft a proposal to submit to NSF’s Gender Equity Program.

2. Research Committee

- Collaborative award to Nancy Flores and Lisa McKee (food scientists in the Department of Family and Consumer Sciences) for visit by Dr. Hildegard Heymann, Food Scientist, University of Missouri-Columbia. In addition to meetings with faculty and students, this visit included an industry seminar: “What Sensory Science Can Do for You”.

3. Recruitment Subcommittee

- Procedures developed for department heads to request matching start-up funds to hire female faculty. Allocated \$189,335 in enhanced start-up funds to:

Paola Bandini, Civil, Agricultural, and Geological Engineering
Jeanine Cook, Electrical and Computer Engineering
Inna Pivkina, Computer Science
Jing He, Computer Science
Tiziana Giorgi, Mathematical Science
- Committee members served as consultants to SME department search committees: provided advisement on recruiting female faculty and met with prospective female faculty during campus interview visits.
- Committee organized a half-day Recruitment Workshop for STEM search committee members.

4. Faculty Development Subcommittee

- Organized two informal “mixers” for mentoring program.
- Organized a half-day Mentoring Workshop.
- Co-Sponsored full day Promotion and Tenure Workshop with Hispanic Caucus and the Office of the Provost.

5. Distinguished Visiting Professor Subcommittee

- Both Dr. Namuth and Dr. Crans met with groups of faculty and relevant disciplinary classes as identified and arranged by the host.
- Dr. Deanna Namuth visit included the following:
 - o Seminar: “Building and Supporting a Distance Education Program in the Sciences”
 - o Seminar: “Creating Effective Modules for Web-Based Science Teaching”
 - o 2 Workshops: “Distance Education in the Sciences”
 - o Seminar and workshop for high school and middle school teachers: “Biotechnology on the Internet”.
- Dr. Debbie Crans visit included:
 - o Mini Workshop for K-12 science teachers: “A Strategy to Introduce Science at K-12”
 - o Research seminar: “A Series of Transition Metal Dipicolinate Complexes and Their Effects on Diabetic Animals: Compound Profiles and DNA Microarray Analysis”

- o Public lecture “Diabetes: Combating one of America’s Heavyweights”
- o Luncheon and mini-workshop for STEM faculty and students: “Mentoring Women in Science”

PUBLICATIONS AND PRODUCTS

- Web page (URL: <http://www.nmsu.edu/~advprog>).
- Ann E. Austin, December 2, 2002, "Evaluation of the New Mexico State University ADVANCE Program." The report has already been provided to all of the members of the Committee on the Status of Women in SME. It will be made available to anyone via the ADVANCE program webpage.
- Laura Kramer, December 27, 2002, “Evaluation of ADVANCE at NMSU”. The report will be provided to all of the members of the Committee on the Status of Women in SME and will be made available to anyone via the ADVANCE program webpage.
- Frehill, Lisa M. “Proposal: NMSU Dual Career Couple Program” prepared at the request of the Provost. The PI met with all 8 deans, one associate dean, with representatives from Personnel and Career and Placement Services in addition to the Provost and the Vice Provost for Research and solicited input from STEM department heads and ADVANCE co-pi's. The report includes a proposed policy statement, a list of existing dual career couple resources at NMSU and a proposed procedure to hire "trainling spouses" who are part of dual career couples. The report was sent to all of the people with whom the PI met about the program, to all STEM department heads and to all members of the Committee of the Status of Women in SME at NMSU. The report will also be made available via the ADVANCE program webpage.

CONTRIBUTIONS

1. Contributions Within Discipline

The PI’s discipline is sociology in which her focus has been on how race/ethnicity, class, and gender affect educational and occupational outcomes with particular attention to gender and engineering in the United States. The program’s goal of institutional transformation is of great interest to sociologists who study social change at the middle level of analysis (i.e., that of the level of work organizations). The program approach is based on sociological theories of social change. According to our evaluators—one from an educational administration background and the other from sociology—the program has made an excellent start towards the institutional changes that were desired.

The collection and presentation of the institutional data about women’s status relative to that of men in the 19 STEM and the six social and behavioral science (SBS) fields (for comparison purposes, since these fields are not targeted by NMSU’s ADVANCE

program) is another important contribution. The ADVANCE award to NMSU provided the PI with the time, resources, and access to confidential data that were necessary to undertake this study. Compilation of these data will enable comparison to other institutions to better demonstrate programmatic impact over time on women's status relative to men's in STEM fields.

2. Contributions to Other Disciplines

The start-up packages and research and travel awards made to women faculty in STEM fields at NMSU have enabled the program funds to impact almost every one of the STEM disciplines represented by the 19 STEM departments targeted by the ADVANCE program at NMSU. Funds were provided for projects in the following areas: astronomy, biochemistry, biology, civil engineering, computer science, electrical engineering, entomology, plant pathology and weed science, wildlife science, food science, industrial engineering, mathematics, mathematics education, and range science. Awards were made to 22 different women from 12 departments. Conference presentations in these fields were supported and publications that used the support provided by these awards will make their way into the relevant disciplinary venues over the next several years.

3. Contributions to Human Resources Development

Human resources development is one of the principal aims of ADVANCE at NMSU. NMSU is in the midst of hiring new faculty due to a wave of retirements over the past few years. The ADVANCE program has already made a substantial contribution to the university because the enhanced start-up packages enabled the university to make competitive offers to successfully recruit five female candidates in STEM. Department Heads reported to the PI that without these enhanced start-up funds, it was unlikely they could have successfully recruited these candidates. Indeed, in one case the PI spoke directly to a candidate with a competing offer in-hand: the commitment of additional ADVANCE funds won this candidate for NMSU.

NMSU's Provost, Dr. William Flores, is committed to the institutional transformation goals of ADVANCE. He has established a Teaching Academy; is in the process of establishing a university-wide Committee on the Status of Women; has established a Roles and Rewards Committee; has begun the process of formalizing the training and information provided to department heads; and plans to insure that diversity training is incorporated into all programs that come from his office. The development of a Teaching Academy at NMSU will have a far-reaching impact on the institution since its goal is recognition and rewarding of teaching activities to be on par with those of research, especially in the promotion and tenure review process. In addition, improvement of teaching is expected to enhance the recruitment and retention of women into SME at all levels. ADVANCE monetary support is absolutely essential in the early stages of the Teaching Academy, since few other sources of support for this new effort are available.

Workshops and seminars provided by ADVANCE on promotion and tenure, recruitment, mentoring and distance education were also important contributions to human resources

development. Prior to ADVANCE, NMSU had no formal mentoring program but because of the ADVANCE Mentoring Program, the university has an excellent model on which to base a program that would be available across the institution. Distance education at NMSU is still in a developmental stage. Dr. Deanna Namuth's workshops, part of the ADVANCE Distinguished Visiting Professor Program, provided important training to NMSU faculty and staff to support the development of distance learning opportunities in STEM fields.

4. Contributions to Resources for Research and Education

As discussed above, 22 women received funds for their research and travel. Some travel enabled advanced associate and full professors to develop new skills. The "seed money" provided by ADVANCE and the allocation of the indirect costs associated with these funds to departments in which these women work has had a significant positive impact on women faculty's ability to conduct and report their research and to maintain professional networks with colleagues beyond NMSU.

5. Contributions Beyond Science and Engineering

ADVANCE co-sponsored activities that reached beyond the 19 STEM departments.

These included:

- Diversity and Hiring speaker Lakesia Johnson at the Department Head Workshop.
- Promotion and Tenure Workshop.
- Development of a Dual Career Couple Program and Policy for NMSU.
- Participation in the new NMSU Teaching Academy, including funding for a Time Management Seminar, which will be open to all NMSU faculty.
- PI serves as a co-chair (with Pat Hynes, Director, NASA Space Grant and CSW-SME Recruitment Committee Chair) on the university Committee on the Status of Women.
- Program Coordinator serves on a university childcare taskforce.

STEM faculty account for approximately half of all faculty members at NMSU. Because ADVANCE is an institutional transformation program, contributions beyond science and engineering are essential to bring about changes at NMSU. Department Heads represent important points of contact across the institution. Providing resources and training for these key personnel is also essential to bringing about changes in the institution that enable gender equity.

All too often, programs that aim at gender equity and those that aim at ethnic equity appear to compete with one another for scarce resources. Forging an alliance with the Hispanic Caucus is essential to ADVANCE's goals to ensure that gender equity does not come at the expense of ethnic equity at NMSU, which is a Hispanic serving institution.

Finally, the program has highlighted women's participation and accomplishments in STEM fields to a larger audience via the press releases about the program and the visits of the two Distinguished Visiting Professors.

OBJECTIVES AND SCOPE

The external evaluators' reports and the ADVANCE CSW-SME have informed the following list of activities planned for the 2003 calendar year. We plan to continue and build upon the successful components of the program and to further enlarge the scope of our activities.

The evaluators indicated that ADVANCE needed clerical support, which necessitates additional space, in order for the program to be efficient and effective. Plans to hire a full-time clerk and to move to a different location are underway. We require direct cost to support the clerk's salary and fringe but will allocate indirect cost to pay rent for the office and for continued support of the office functions.

Activities for 2003 will continue those begun in 2002. Two important research activities will be spearheaded by the ADVANCE CSW-SME:

1. University-wide gender equity in faculty pay study.
2. Survey of Academic Climate and Activities survey of STEM departments.

The latter survey will also be administered to the six social and behavioral science (SBS) departments in the College of Arts and Sciences that are serving as the ADVANCE comparison group.

The Exit Interview Protocol will be finalized and plans made to implement exit interviews.

The PI and Program Coordinator will continue to present papers at conferences to disseminate information about the ADVANCE program. Both the PI and the Program Coordinator will begin publishing in relevant venues. For example, the Program Coordinator is preparing a literature review for the Society of Women Engineers' magazine annual edition that disseminates new information about research on women in engineering to its members.

Scope

The program will develop ways to enable departments to professionally develop women who are currently employed as full-time college track faculty. Women account for only 18% of tenured and tenure track STEM faculty but for 49% of non-tenure track STEM faculty.

The program will continue to work with the Teaching Academy and Hispanic Caucus to better engage male STEM faculty. The mentoring program will be expanded as one way to approach male STEM faculty.

Justification for Changes in Objective and Scope

Not all of the above are significant changes in objectives or scope. The proposed changes will increase program personnel effectiveness and efficiency to enable programmatic maintenance and expansion.

The use of direct cost to support the clerk's salary and fringe is essential because of the way that IDC generated by the program has been allocated. Specifically, more than half of the IDC "follows" the start-up, research and travel awards to the targeted STEM departments. Such a process has generated goodwill towards the program (to avoid possible backlash) and provides additional funds for faculty members' research and development. The clerk will work in the ADVANCE office, reporting directly to the ADVANCE Program Coordinator, performing only work related to the ADVANCE Program. Clerical tasks currently consume much of the Program Coordinator's time.

Once presented with the data, the CSW-SME saw extension of the program components to the pool of prospective women faculty currently teaching in non-tenure track positions as a wise way to increase women's faculty status in SME disciplines at NMSU. These women have proven track records for teaching in the institution and have established themselves as valuable members of the faculty.

Increasing men's participation in ADVANCE is essential to prevent backlash and to insure institutional change.

Expanding the gender equity in faculty pay study to the university and including six SBS departments in the Survey of Academic Climate and Activities will provide important points of comparison to evaluate the impact of the ADVANCE program.

Table 1A: New Mexico State University Faculty by Category, Fall 2002

Faculty Category	All NMSU ¹			STEM and SBS Departments		
	All	Female	%Female	All	Female	%Female
Tenure/Tenure Track	546	170	31.1%	283	62	21.9%
Temporary/Non-tenure Track ²	102	58	56.9%	39	21	53.8%
Total	648	228	35.2%	322	83	25.7%

Notes: ¹Includes library faculty but excludes cooperative extension service.

²Temporary/Non-Tenure Track are also referred to as “Noncontract” or as “College Track faculty. Here are only those faculty who are full time in positions that are relatively permanent have been included.

Table 1B: New Mexico State University Faculty by Category, Fall 2002

Faculty Category	Social and Behavioral Science Departments			ADVANCE (STEM) Departments		
	All	Female	%Female	All	Female	%Female
Tenure/Tenure Track	51	21	41.2%	232	41	17.7 %
Temporary/Non-tenure Track	8	2	25.0%	31	19	61.3 %
Total	59	23	39.0%	263	60	22.8%

Table 2: Distribution of NMSU STEM Faculty by Category and Gender, Fall Semesters 1995 - 2002

	Tenure/Tenure Track			Non-Tenure Track			All Categories		
	Total	Female	% Female	Total	Female	% Female	Total	Female	% Female
1995	251	34	13.5%	35	15	42.8%	286	49	6.6%
1996	246	33	13.4%	31	15	48.4%	277	48	17.3%
1997	250	40	16.0%	31	17	54.8%	281	57	20.3%
1998	247	41	16.6%	36	18	50.0%	283	59	20.8%
1999	240	42	17.5%	27	16	59.3%	267	58	21.7%
2000	231	40	17.3%	32	22	68.7%	263	62	23.6%
2001	233	37	15.8%	30	18	60.0%	263	55	20.9%
2002	232	41	17.6%	39	19	48.7%	271	60	22.1%

Table 3A: Fall 2002 STEM Departmental Distribution of Tenured and Tenure Track Female Faculty

	Distribution of Female Faculty in STEM Departments		
	All	Female	%Female
Agriculture and Home Economics	57	15	26.3%
Agronomy and Horticulture	16	3	18.8%
Animal and Range Science	17	1	5.9%
Entomology, Plant Pathology and Weed Science	10	3	30.0%
Family and Consumer Science	8	7	87.5%
Fishery and Wildlife Sciences	6	1	16.7%
Arts and Sciences	101	19	18.8%
Astronomy	7	1	14.3%
Biology	18	4	22.2%
Chemistry and Biochemistry	18	1	5.6%
Computer Sciences	11	2	18.2%
Geological Sciences	6	2	33.3%
Mathematical Sciences	27	8	29.6%
Physics	14	1	7.1%
Engineering	74	6	8.1%
Electrical and Computer Engineering	20	1	5.0%
Chemical Engineering	6	1	16.7%
Civil and Geological Engineering	14	2	14.3%
Engineering Technology	12	2	16.7%
Industrial Engineering	6	1	16.7%
Mechanical Engineering	13	0	0.0%
Survey Engineering	3	0	0.0%

Table 3BA: Fall 2002 STEM Departmental Distribution of Non-Tenure Track Female Faculty

	Tenured & Tenure Track		Non-Tenure Track			Non-Tenure Track as % All Females
	Female	%Female	All	Female	% Female	
Agriculture and Home Economics	15	26.3%	1	1	100.0%	6.3%
Agronomy and Horticulture	3	18.8%	0	0	0.0%	0.0%
Animal and Range Science	1	5.9%	0	0	0.0%	0.0%
Entomology, Plant Pathology and Weed Science	3	30.0%	0	0	0.0%	0.0%
Family and Consumer Science	7	87.5%	1	1	100.0%	12.5%
Fishery and Wildlife Sciences	1	16.7%	0	0	0.0%	0.0%
Arts and Sciences	19	18.8%	25	17	68.0%	47.2%
Astronomy	1	14.3%	1	1	100.0%	50.0%
Biology	4	22.2%	1	1	100.0%	20.0%
Chemistry and Biochemistry	1	5.6%	4	2	50.0%	66.7%
Computer Sciences	2	18.2%	2	2	100.0%	50.0%
Geological Sciences	2	33.3%	0	0	0.0%	0.0%
Mathematical Sciences	8	29.6%	15	11	73.3%	57.9%
Physics	1	7.1%	2	0	0.0%	0.0%
Engineering	6	8.1%	5	1	20.0%	14.2%
Electrical and Computer Engineering	1	5.0%	3	1	33.3%	50.0%
Chemical Engineering	1	16.7%	0	0	0.0%	0.0%
Civil and Geological Engineering	2	14.3%	1	0	0.0%	0.0%
Engineering Technology	2	16.7%	0	0	0.0%	0.0%
Industrial Engineering	1	16.7%	1	0	0.0%	0.0%
Mechanical Engineering	0	0.0%	0	0	0.0%	0.0%
Survey Engineering	0	0	0	0	0.0%	0.0%

Table 3C: Fall 2002 SBS Departmental Distribution of Female Faculty

	Tenured and Tenure Track			Non-Tenure Track		
	All	Female	%Female	All	Female	%Female
Communications	6	2	33.3%	3	2	66.7%
Criminal Justice	9	4	44.4%	1	0	0.0%
Geography	4	0	0.0%	1	0	0.0%
Government	8	2	25.0%	1	0	0.0%
Psychology	13	6	46.2%	0	0	0.0%
Sociology and Anthropology	11	7	63.6%	2	0	0.0%

Table 4A: NMSU STEM Faculty by Rank and Tenure Status, Fall 2002

	Females		Males	
	Number	Percent	Number	Percent
Instructor, Non-Contract	6	10.0%	3	1.5%
College Track, Non-Contract	13	21.7%	9	4.4%
Assistant, Tenure-Track	15	25.0%	52	25.6%
Assistant, Tenured	0	0.0%	2	1.0%
Associate, Tenure-Track	1	1.7%	3	1.5%
Associate, Tenured	12	20.0%	63	31.0%
Full, Tenured	13	21.7%	71	35.0%
TOTAL	60		203	

Table 4B: NMSU SBS Faculty by Rank and Tenure Status, Fall 2002

	Females		Males	
	Number	Percent	Number	Percent
Instructor, Non-Contract	0	0.0%	0	0.0%
College Track, Non-Contract	2	8.7%	6	16.7%
Assistant, Tenure-Track	9	39.1%	7	19.4%
Assistant, Tenured	3	13.0%	0	0.0%
Associate, Tenure-Track	0	0.0%	1	2.8%
Associate, Tenured	6	26.1%	10	27.8%
Full, Tenured	3	13.0%	12	33.3%
TOTAL	23		36	

Table 5: Faculty by Gender and Ethnicity, Number and Percent of Total within Tenured and Tenure-Track and Non-Tenure Track

		Tenured and Tenure-Track					Non-Tenure Track				
		Hispanic	Asian	Black	White	Not Coded	Hispanic	Asian	Black	White	Not Coded
STEM	Female	4 1.7%	6 2.6%	0 0.0%	29 12.5%	2 0.9%	2 6.4%	0 0.0%	0 0.0%	15 48.3%	2 6.4%
	Male	13 5.6%	21 9.0%	1 0.4%	154 66.4 %	2 0.9%	0 0.0%	1 3.2%	1 3.2%	8 25.8%	2 6.4%
	Total	17	27	1	183	4	2	1	1	23	4
SBS	Female	2 3.9%	1 2.0%	0 0.0%	17 33.3%	1 2.0%	0 0.0%	0 0.0%	0 0.0%	2 25.0%	0
	Male	2 3.9%	0 0.0%	0 0.0%	27 52.9%	1 2.0%	1 12.5%	1 12.5%	0 0.0%	3 37.5%	1 12.5%
	Total	4	1	0	44	2	1	1	0	5	1

Table 6A: NMSU STEM Departments Assistant Professor Cohorts 1995-2002

Cohort Year	# In Cohort		Promoted		Left Institution		Not yet tenured	
	M	F	M	F	M	F	M	F
1995	9	4	9	1	0	3	0	0
1996	10	1	8	1	2	0	0	0
1997	10	0	2	0	3	0	5	0
1998	5	3	0	1	0	0	5	2
1999	6	4	1	0	1	0	4	4
2000	7	2	0	0	0	0	7	2
2001	18	1	0	0	0	0	18	1
2002	11	6	0	0	0	0	11	6
Total 1995-2002	76	21	20 (26.3%)	3 (14.3%)	6 (7.9%)	3 (14.3%)	50 (65.8%)	15 (71.4%)

Notes:

¹One of the women who left had been promoted to a tenured associate professor position before she left. The other two left before promotion/tenure.

Table 6B: NMSU SBS Departments Assistant Professor Cohorts 1995-2002

Cohort Year	# In Cohort		Promoted		Left Institution		Not yet tenured	
	M	F	M	F	M	F	M	F
1995	1	3	1	1	0	2	0	0
1996	2	2	1	1	1	1	0	0
1997	3	1	0	0	2	0	1	1
1998	2	1	0	0	2	0	0	1
1999	1	0	0	0	0	0	1	0
2000	1	1	0	0	1	0	0	1
2001	0	4	0	0	0	0	0	4
2002	3	1	0	0	0	0	3	1
Total 1995-2002	13	13	2 (15.3%)	2 (15.3%)	6 (46.1%)	3 (23.0%)	5 (38.4%)	8 (61.5%)

Table 7A: NMSU STEM Departments Associate Professor Cohorts 1995-2002

Cohort Year	# In Cohort		Promoted		Left Institution		Not yet tenured	
	M	F	M	F	M	F	M	F
1995	5	2	0	1	2	1	0	0
1996	7	3	2	1	1	1	0	0
1997	9	1	1	0	3	0	1	0
1998	8	4	1	1	0	2	0	0
1999	10	2	3	1	1	0	0	0
2000	9	3	1	1	0	2	0	0
2001	7	1	2	1	0	0	0	0
2002	5	1	0	0	0	0	1	0
Total 1995-2002	60	16	10 (16.7%)*	6 (37.5%)	7 (11.7%)	5 (31.2%)	2 (3.3%)	0 (0.0%)

* Percentages are within sex to show the 2002 status of faculty hired 1995-2002.

Table 7B: NMSU SBS Departments Associate Professor Cohorts 1995-2002

Cohort Year	# In Cohort		Promoted		Left Institution		Not yet tenured	
	M	F	M	F	M	F	M	F
1995	0	2	0	1	0	0	0	0
1996	4	0	2	0	0	0	0	0
1997	1	0	0	0	0	0	0	0
1998	1	1	1	0	0	1	0	0
1999	1	3	1	0	0	0	0	0
2000	1	0	1	0	0	0	0	0
2001	0	0	0	0	0	0	0	0
2002	1	1	0	0	0	0	1	0
Total 1995-2002	10	7	5 (50.0%)*	1 (14.2%)	0 (0.0%)	1 (14.2%)	1 (14.2%)	0 (0.0%)

* Percentages are within sex to show the 2002 status of faculty hired 1995-2002.

Table 8: Tenured and Tenure Track Age, Time at NMSU, Experience and Time to Tenure

	SBS Departments			STEM Departments		
	Males	Females	Gender Gap	Males	Females	Gender Gap
Age						
Mean	46.9	41.6	5.3	46.4	44.3	2.1
Median	49.5	42.0	7.5	46.0	43.0	3.0
Std. Dev.	7.0	7.0		8.7	7.1	
Minimum	29.0	29.0		28.0	33.0	
Maximum	58.0	55.0		70.0	61.0	
# of valid cases	30	21		191	41	
Time at NMSU						
Mean	10.8	7.4	3.4	11.4	8.0	3.4
Median	11.0	7.0	4.0	11.0	8.0	3.0
Std. Dev.	7.4	4.8		8.8	5.7	
Minimum	0.0	0.0		0.0	0.0	
Maximum	27.0	19.0		38.0	19.0	
# valid cases	30	21		191	41	
Years of Experience						
Mean	15.0	9.6	5.4	16.0	11.8	4.2
Median	14.5	9.0	5.5	15.0	11.0	4.0
Std. Dev.	8.5	6.7		9.0	7.1	
Minimum	0.0	0.0		0.0	0.0	
Maximum	31.0	24.0		40.0	27.0	
# valid cases	30	21		191	41	
Time to Tenure						
Mean	4.0	5.2	-1.2	4.6	4.5	0.1
Median	5.0	5.0	0	5.0	5.0	0
Std. Dev.	1.8	1.2		1.5	2.1	
Minimum	0.0	2.0		0.0	0.0	
Maximum	6.0	7.0		7.0	8.0	
# valid cases	22	12		136	25	

Years of experience: Current year minus date of Ph.D.

Gender Gap: Male minus Female.

Table 9: Tenure and Tenure Track Monthly Salary by Rank

	SBS Departments			STEM Departments		
	Males	Females	Gender Gap*	Males	Females	Gender Gap
Monthly Salary						
Mean	\$5,367.80	\$4,734.42	\$633.38	\$6,124.97	\$5,640.41	\$484.56
Median	\$5,247.40	\$4,419.20	\$828.20	\$5,884.20	\$5,530.00	\$354.26
Std. Dev.	\$1,228.02	\$1,329.95		\$1,289.74	\$841.31	
Minimum	\$3,500.00	\$3,525.00	Ratio**:	\$3,899.80	\$3,916.20	Ratio:
Maximum	\$8,483.10	\$9,111.30	0.842	\$12,010.90	\$7,450.60	0.939
# valid cases	30	21		191	41	
Monthly Salary: Assistant Professors						
Mean	\$4,256.93	\$4,109.78	\$147.15	\$5,288.48	\$5,209.15	\$79.33
Median	\$4,400.00	\$4,008.30	\$391.70	\$4,985.20	\$4,901.20	\$84.00
Std. Dev.	\$476.13	\$5,12.37		\$844.52	\$937.51	
Minimum	\$3,500.00	\$3,525.00	Ratio: 0.911	\$3,899.80	\$3,916.20	Ratio:
Maximum	\$4,812.70	\$4,920.90		\$7,030.00	\$7,000.00	0.983
# valid cases	7	12		54	15	
Monthly Salary: Associate Professors						
Mean	\$5,203.77	\$4,625.16	\$578.61	\$5,855.20	\$5,454.85	\$400.35
Median	\$5,363.80	\$4,569.10	\$794.70	\$5,620.80	\$5,324.10	\$296.70
Std. Dev.	\$964.62	\$332.54		\$950.17	\$470.99	
Minimum	\$3,951.60	\$4,323.50	Ratio:	\$4,150.40	\$4,814.20	Ratio:
Maximum	\$6,376.40	\$5,203.90	0.852	\$8,617.70	\$6,712.90	0.947
# valid cases	11	6		66	13	
Monthly Salary: Full Professors						
Mean	\$6,166.18	\$7,451.55	-\$1285.37	\$7,011.96	\$6,323.57	\$688.35
Median	\$6,029.60	\$7,292.50	-\$1262.90	\$6,754.90	\$6,293.80	\$461.11
Std. Dev.	\$1,224.16	\$1,586.25		\$1,315.41	\$580.30	
Minimum	\$4,386.00	\$5,950.80	Ratio:	\$4,788.00	\$5,494.80	Ratio:
Maximum	\$8,483.10	\$9,111.30	1.295	\$12,010.90	\$7,450.60	0.932
# valid cases	12	3		71	13	

*Gender Gap: Male minus Female.

** Ratio: consistent with conventional reporting on pay gaps between men and women, the ratio of women's to men's median earnings was computed and reported. This ratio is interpreted as the amount the average woman earns for every dollar the average man earns.

Table 10: Non-Contract Age, Time at NMSU, Experience and Monthly Salary

	SBS Departments			STEM Departments		
	Males	Females	Gender Gap	Males	Females	Gender Gap
Age						
Mean	49.3	57.0	-7.7	42.3	41.5	0.8
Median	52.0	57.0	-5.0	41.5	40.0	1.5
Std. Dev.	12.2	2.8		10.0	7.9	
Minimum	27.0	55.0		27.0	32.0	
Maximum	61.0	59.0		64.0	60.0	
# valid cases	6	2		12	19	
Time at NMSU						
Mean	6.0	12.0	-6.0	3.8	5.0	-1.2
Median	2.0	12.0	-10.0	0.5	1.0	-.5
Std. Dev.	10.5	12.8		6.8	7.1	
Minimum	0.0	3.0		0.0	0.0	
Maximum	27.0	21.0		19.0	21.0	
# valid cases	6	2		12	19	
Years of Experience						
Mean	10.2	21.5	-11.3	8.6	11.4	-2.8
Median	7.0	21.5	-14.5	7.0	8.0	-1.0
Std. Dev.	9.8	12.0		6.4	8.3	
Minimum	1.0	13.0		2.0	4.0	
Maximum	29.0	30.0		21.0	35.0	
# valid cases	6	2		12	19	
Monthly Salary						
Mean	\$3,849.60	\$2,948.27	\$901.33	\$3,769.87	\$3,616.15	\$153.72
Median	\$3,673.90	\$2,948.30	\$125.60	\$3,200.00	\$3,358.80	-\$158.80
Std. Dev.	\$792.23	\$60.03		\$1,188.81	\$716.89	
Minimum	\$2,941.70	\$2,905.80	Ratio:	\$2,450.10	\$2,617.10	Ratio:
Maximum	\$5,000.00	\$2,990.70	0.802	\$5,705.40	\$5,162.10	1.049
# valid cases	6	2		12	19	

*Gender Gap: Male minus Female.

** Ratio: consistent with conventional reporting on pay gaps between men and women, the ratio of women's to men's median earnings was computed and reported. This ratio is interpreted as the amount the average woman earns for every dollar the average man earns.

Table 11: NMSU Administrative Leadership Positions, Fall 2002

	Total	Male	Female	%Female
Department Heads (STEM)	19	17	2	11.7%
Associate Department Heads (STEM)	7	6	1	16.6%
Assistant Department Heads (STEM)	1	1	0	0.0%
Vice Presidents/Provosts	5	3	2	40.0%
Vice Provosts	3	1	2	66.6%
Deans	8	5	2 ¹	25.0%
Associate Deans	11	7	4	25.0%

Note: ¹The two female deans were the Dean of the Graduate School and the Library Dean. All six academic college deans were men but national searches are in progress to fill three of these six positions.

Table 12: SBS and STEM Faculty Holding Regents' Professorships, 2002

	Total	Men	Women
SBS Departments	1	0	1
STEM Departments	1	1	0
Non SBS/STEM	4	4	0
Total	6	5	1

Table 13: Gender Distribution of Tenure and Promotion Committees 1997-2003

	College of Agriculture and Home Economics			College of Arts and Sciences			College of Engineering		
	Total	Female	% Female	Total	Female	% Female	Total	Female	% Female
1997-1998	N/A	N/A	N/A	6	0	0.0%	6	0	0.0%
1998-1999	5	1	20.0%	6	0	0.0%	7	0	0.0%
1999-2000	5	2	40.0%	6	1	16.6%	6	0	0.0%
2000-2001	5	2	40.0%	6	1	16.6%	7	0	0.0%
2001-2002	5	2	40.0%	6	1	16.6%	6	0	0.0%
2002-2003	5	2	40.0%	6	1	16.6%	6	0	0.0%

Table 14: Start-Up Packages Accepted by Newly Hired Tenure-Track Assistant Professors with 0 Years of Credit Towards Tenure, 1995-2002*

	College of Arts and Sciences		College of Engineering	
	Males	Females	Males	Females
Moving Expenses				
Mean	\$2,476.19	\$2,100.00	\$3,892.00	\$3,400.00
Minimum	0	0	0	0
Maximum	\$6,000.00	\$5,000.00	\$6,000.00	\$5,200.00
Number of valid cases	21	5	13	3
Number unspecified	0	0	4	0
Estimated Value of Other Start-Up Expenses				
Mean	\$59,937.76	\$87,020.00	\$40,933.00	\$55,444.00
Minimum	\$3,000.00	\$5,300.00	\$3,000.00	\$5,200.00
Maximum	\$150,000.00	\$130,000.00	\$118,556.00	\$133,889.00
Number of valid cases	21	5	13	3
Number unspecified	0	0	4	0
Total Start-Up Package Value				
Mean	\$62,413.95	\$89,120.00	\$36,420.00	\$58,844.00
Number Valid Cases	21	5	16	3
Number unspecified	0	0	0	0
Starting Annual Salary (all are for 9 months)				
Mean	\$45,516.67	\$43,740.00	\$53,123.00	\$57,667.00
Minimum	\$36,000.00	\$38,000.00	\$45,000.00	\$52,000.00
Maximum	\$70,000.00	\$48,000.00	\$71,000.00	\$65,000.00
Number Valid Cases	21	5	17	3
Number unspecified	0	0	0	0

* Letters of offer were not provided by the College of Agriculture and Home Economics. A letter sent to the PI from the Dean of that college indicated that terms of start-up are not customarily included in letters of offer but that the average start-up package for each new faculty member was \$25,000.

Table 15: Tenure Status and Rank of Newly Hired Tenure and Tenure-Track Faculty, Accepted Offers, 1995-2002

	College of Arts and Sciences		College of Engineering	
	Males	Females	Males	Females
Rank				
College Assistant	1	0	0	0
Assistant Professor	25	5	20	3
Associate Professor	0	0	2	0
Full Professor	0	1	0	0
Years Credit Towards Tenure				
0				
1	21	5	17	3
2	1	0	2	0
3	4	0	2	0
4	0	0	0	0
Mean	0	1	0	0
	5.2	1.2	4.2	0.6
Total Start-Up Package Value				
Mean				
Number Valid Cases	\$62,392.04	\$66,728.57	\$43,918.62	\$62,244.33
Number unspecified	26	6	21	3
	0	0	1	0
Starting Annual Salary (all are for 9 months)				
Mean	\$45,148.08	\$46,528.57	\$55,095.00	\$57,667.00
Minimum	\$36,000.00	\$38,000.00	\$45,000.00	\$52,000.00
Maximum	\$70,000.00	\$55,000.00	\$71,000.00	\$65,000.00
Number Valid Cases	26	7	22	3
Number unspecified	0	0	0	0

Table 16: Frequency of Newly Hired Faculty by Sex, Accepted Offers, 1995-2002*

	Males	Females	Total
Chemical Engineering	2	1	3
Civil and Geological Engineering	4	1	0
Electrical and Computer Engineering	8	1	0
Engineering Technology	1	0	1
Industrial Engineering	2	0	2
Mechanical Engineering	5	0	5
Astronomy	2	1	3
Biology	2	2	4
Chemistry and Biochemistry	4	0	4
Computer Science	4	0	4
Geological Sciences	1	0	1
Mathematical Sciences	6	3	9
Physics	7	1	8

* Letters of offer were not provided by the College of Agriculture and Home Economics. A letter sent to the PI from the Dean of that college indicated that terms of start-up are not customarily included in letters of offer but that the average start-up package for each new faculty member was \$25,000.

EVALUATION REPORT OF THE NEW MEXICO STATE UNIVERSITY ADVANCE PROGRAM

**Evaluator: Ann E. Austin
Professor of Higher, Adult, and Lifelong Education
Michigan State University**

Submitted December 2, 2002

Abstract

The ADVANCE Program at New Mexico State University (NMSU) is designed to foster institutional transformation that will increase the number and success of women faculty members in science, engineering, technology, and mathematics. Program elements focus on recruitment, research awards, faculty development and mentoring, and a distinguished visiting professor series. This evaluation report is based on an initial exploration of the institutional context at NMSU as it pertains to the recruitment, employment, retention, and support of women faculty in STEM fields, and a review of the components of the ADVANCE Program. The report is organized around three areas: 1) the current context for women faculty in STEM fields at NMSU; 2) ADVANCE as a strategy for transformation and an assessment of the program components; and 3) suggestions for consideration as the ADVANCE Program continues at NMSU.

Contact Information for Evaluator

Ann E. Austin
Professor, Higher, Adult, and Lifelong Education
417 Erickson Hall
Michigan State University
East Lansing, MI 48824
Tel: 517-355-6757
E-Mail: aaustin@msu.edu

EVALUATION REPORT OF THE NEW MEXICO STATE UNIVERSITY ADVANCE PROGRAM

Evaluator: Ann E. Austin

Overview

The ADVANCE Program at New Mexico State University (NMSU) is designed to foster institutional transformation that will increase the number and success of women faculty members in science, engineering, technology, and mathematics. Structured on sociological and feminist theories of organizational change, the ADVANCE PROGRAM takes both a “top-down” approach and a “bottom-up” approach to institutional change. Program elements focus on recruitment, research awards, faculty development and mentoring, and a distinguished visiting professor series.

This evaluation report is based on an initial exploration of the institutional context at NMSU as it pertains to the recruitment, employment, retention, and support of women faculty in STEM fields, and a review of the components of the ADVANCE Program. This initial report provides a benchmark during the first year of the five-year program. Several questions guided the data collection and are used to organize the report:

- 1) Current Context: What characterizes the current climate for women faculty in science, technology, engineering, and math fields at NMSU? What are the supports, challenges, and barriers confronting women faculty members in these fields? What changes or adaptations may be needed in the current context in order to more fully support women faculty in the STEM fields?
- 2) ADVANCE as a Strategy for Transformation: How is the ADVANCE Program contributing to institutional change in regard to the advancement and support of women faculty in STEM fields? How do faculty members in the STEM fields and institutional administrators view the components of the ADVANCE Program? At this early stage, what can be learned about how the components of the program may affect the climate and environment for women faculty in STEM fields?
- 3) Suggestions for the Future: What suggestions do respondents have as the ADVANCE Program continues at NMSU? What might be improved? What might be added or changed?

My intent in this initial evaluation and report has been to learn enough about the program as it is developing at NMSU to enable me to provide a “mirror” for the leaders and participants in ADVANCE. That is, I have tried to examine and describe the context, the elements of the program, and suggestions for the future in ways that help the project leaders as they reflect on the work underway and consider possible adaptations or adjustments as they move forward.

This initial evaluation study was based on review of program documents (including the website, reports of sub-committee meetings, and other relevant program documents) and a two-day campus visit. During the campus visit, I held focus group meetings and individual interviews with a number of institutional leaders, ADVANCE program staff, department chairs and deans, and faculty participants in ADVANCE-related activities. The number and type of contacts included the following: the ADVANCE Director and the Program Coordinator; the University Provost; four Deans in STEM fields; eight Department Chairpersons in STEM fields; four professors, two associate professors, and seven assistant professors, all in STEM fields; and three administrators in units relevant to the work of ADVANCE. Participants were assured that their confidentiality would be protected, so individual names will not be highlighted in this report. One exception is the Provost; I do mention specific points about the institution's direction described to me by the Provost. My impression was that those interviewed felt quite comfortable discussing the ADVANCE Program as well as their observations and experiences within the university.

The Institutional Context for the ADVANCE PROGRAM

Overview of Important Contextual Elements of New Mexico State University

The start of ADVANCE has coincided with a relatively new central administration. The president of the university has been in place for about two years, the Provost for a year, and other senior level administrators, including the Vice President for Research, are new to their positions. This new administration is committed to moving the institution forward to new levels of quality, and the Provost is widely respected as a strong supporter of diversity. As one department chair stated in regard to the possibility of change that would enhance the situation for women faculty, "a window is open."

The Provost described in some detail important initiatives to improve the recruitment, retention, and support of faculty from underrepresented groups. He sees ADVANCE as a very important part of a "constellation of programs" that will help departments diversify in terms of including faculty from minority and underrepresented groups, including women. Another such program is the Minority Doctoral Student Loan Program, which is a state-wide program to fund students from underrepresented groups to attend graduate school to become faculty members. Departments identify promising undergraduates, funds are provided for these students to pursue doctoral study, and the nominating department holds a faculty position for the person to assume upon completion of the degree. The Provost also is supporting the development of a Teaching Academy, and the establishment of two task forces, one on Faculty Roles and Rewards and one on General Education, which he expects will bring greater congruence to faculty work, roles, and rewards. Additionally, the Provost is working to make salaries more competitive with other institutions. Efforts are focused on attracting funds to endow professorships, and securing commitment from the state legislature. Another component of the Provost's vision includes strengthening the university's role in regional economic development and creating partnerships between the university and the business and educational sectors.

Changing the relationship of the university with its environment should, the Provost believes, lead to better support for the salaries and the work of the faculty. The Provost believes that organizational transformation requires both attention from senior administrators, who can set the direction and tone for the university, as well as efforts by the Senate and the faculty. He specifically stated that he encourages deans, department chairpersons, and faculty members to take responsibility for hiring a diverse faculty. Thus, the Provost supports with enthusiasm the work of the ADVANCE program, and sees ADVANCE as a key part of a range of efforts to bring about organizational change.

A strong theme emerged as I learned about the institutional context for women faculty members: the specific context varies by college and department. As one dean explained, “the department is where everything happens.” Within the STEM fields, departments at NMSU indeed appear to vary in the nature of the environment as it pertains to women faculty. In some departments, well-respected women faculty members have held positions for some time. Other departments are apparently dominated by older, white, male colleagues and are reported by a number of respondents as being less hospitable to women faculty members. Some of the STEM departments have had fairly recent changes in department chairs, and the new chairs (in fact, all the chairs with whom I met, including those in position for some time) seem to be quite sensitive to and concerned about the challenges confronting women faculty. Of importance also is that the wider national environment varies in terms of available Ph.D.-trained prospective faculty. All in all, the specific context for women faculty in STEM fields at NMSU is greatly affected by the specific department and field, and the person serving as department chair.

Overall, interviewees reported that, “after decades of cynicism regarding recruitment and retention,” in the words of one department chair, changes are actually underway in regard to attracting and retaining women faculty members in STEM fields. Change may be slow, however. One dean explained that, “Quick change would require new positions and new money. But this is not available, so change is slow.” Nevertheless, as is occurring in higher education institutions across the country, significant numbers of senior faculty members are reaching retirement age, and women are slowly being appointed and moving into leadership roles. Several respondents suggested that, in this context, many people are hopeful to see if change may actually occur in terms of the recruitment and support of women faculty. A number of respondents view ADVANCE with enthusiasm and hope; they recognize that institutional change is very challenging, but they see a window of opportunity with the new administration, retirements underway, and a group of committed deans and department chairs. Several noted that ADVANCE is playing an important role in helping to “nudge” the change process along.

Perspectives of Women Faculty

My campus visit included focus groups with early career women faculty as well as with a group of senior women faculty members in STEM fields. Their perspectives and observations of the environment provide specific information about how women faculty experience their lives and work at NMSU.

The early career women faculty were very consistent with each other in their comments, and additionally, generally consistent with themes that often emerge in research with early career faculty across institutions and disciplines. They spoke poignantly of their struggles to juggle their time as they face multiple demands and strive to find balance between their personal and professional lives. They often find it difficult to say “no” to requests for various tasks and do not always know when it is acceptable to decline a request. Several commented that they feel they must sacrifice their personal relationships with family members and friends in order to succeed as academics. They talked about the particular demands of being women faculty in male-dominated departments. The environment is not always comfortable for women in terms of how male colleagues interact with them. For example, one mentioned that in her department there is a “sense of hazing” and “women don’t go for that...[male faculty] shouldn’t just act like [they] do to men.” Others mentioned that it is challenging for them as women to know how to negotiate professional relationships with male colleagues, particularly if they find themselves as one of only a few women at professional conferences. Those in departments with no other or only a few women mentioned the desire to have a woman mentor. Referring to the “leaky pipeline” in which women scientists do not move into faculty roles or choose to leave faculty positions, one early career woman explained that “it’s not one thing...it’s a lot of things that add up.”

Overall, the early career women I interviewed were highly committed to their work and enthusiastic about being faculty members. Yet they also recognized and could name specific aspects of the workplace within their departments and disciplines that they find challenging. Of particular note, they were very pleased to have the opportunity to talk together about their experiences, and seemed to appreciate having the external facilitation that I provided as a colleague who has no connection with their departments or their careers. They clearly found the focus group conversation very stimulating, and I understand that, later in the day of the focus group, they requested of the ADVANCE Program Coordinator that further opportunities be arranged for them to meet and talk. I include this later as a suggestion for further ADVANCE activities.

Among the senior women faculty whom I interviewed two different viewpoints emerged about their experiences at NMSU. One faculty member commented that, overall, though not in every department, the institution provides a positive environment for women. Two others felt that their departments had provided considerable opportunity for them to pursue their interests and succeed. Several of the other senior women faculty, however, offered somewhat different opinions. One explained that, in her view, the university environment has not been particularly supportive of women. She explained, “We’re successful because we are still here. But some women have left. We’ve all had frustrating episodes. We solve them and we decide we are better here than if we left.” This woman continued by explaining that faculty members, women or men, have to “succeed on your own.” Agreeing that the environment has not been entirely supportive of women faculty, another female faculty member said that discrimination is subtle, rather than deliberate; others agreed with this assessment of the environment. She explained that women are often not considered for leadership development opportunities, because, in her opinion, male colleagues or leaders tend to think of others like themselves. Nevertheless, other

colleagues suggested that the NMSU environment has been fairly supportive compared to various other institutions, as evidenced by some examples of efforts made to arrange spousal hires. Another woman explained that she has felt that, “if you work hard, you are not stopped,” but she also commented that she feels that she has had to work more than her male colleagues in order to succeed.

Not surprisingly, the specific concerns of early career women faculty and established faculty varied somewhat according to career stages. Also, often due to different department contexts, some women had faced difficulties with isolation and lack of support, or “subtle harassment”, while others had felt welcomed and supported. However, throughout the comments of the women faculty there was acknowledgement that the environment feels more supportive and inviting for women if there are other women present. As the number of women has expanded, even modestly, women faculty members have appreciated having other women in the STEM fields with whom to interact. Also, several specific concerns were mentioned by a number of the women faculty, as well as by many institutional leaders (deans, chairs, and other administrators). These specific issues are highlighted next.

Particular Concerns about the Environment for Women Faculty

In addition to concerns expressed by some women faculty about lack of support, isolation, and uncomfortable interactions with colleagues, three important issues were mentioned by a majority of the faculty members and administrators I interviewed.

Family Policies: Many respondents urged the university to expand its approach to family-related policies. The lack of a pregnancy or family leave policy was reported as a significant issue that particularly affects the work lives of women faculty members. Apparently, according to a number of respondents, leaves for childbirth or illness are usually handled within each department. Faculty members must depend on the willingness of their colleagues to help them make arrangements. Faculty members as well as administrators expressed eagerness for some kind of institutional policy to handle family-related circumstances. A few administrators and faculty members also suggested that some tenure flexibility should be available in cases of childbirth, but opinions on this topic varied. Some faculty would also like to see institutionally-organized day care options.

The Spousal/”Two-Body” Issue: This topic came up repeatedly in interviews. The ease with which respondents used the term “two-body problem” indicated that concerns are widespread about how to hire and retain a faculty member who has a spouse interested in employment. Department chairs seemed especially concerned about situations where promising female faculty members cannot be recruited because appropriate employment opportunities in the university or area are not available for the spouse. The rural nature of the geographic location, with relatively few employment options in the vicinity, adds to this problem. Respondents were pleased that a proposal is apparently in process, facilitated by the efforts of Professor Lisa Frehill, ADVANCE Director, in coordination with the Personnel Office.

Salaries: Deans and department chairpersons are very concerned about the salary levels and start-up funds at the university, since lower salary schedules in comparison to those at other institutions make recruiting women faculty difficult. Various figures were offered to describe the level of NMSU salaries as compared to those of competitors. Personnel Office figures were that NMSU salaries overall were 75 to 87 percent of the salaries offered at competitor institutions. One department chair mentioned that candidates had “laughed” at the NMSU salary and start-up offer. The high salary possibilities offered for non-academic positions in engineering and other areas add to the salary challenge for deans and department chairs trying to recruit women faculty. Better salaries at other institutions also make it difficult to retain good faculty members. The story of a woman STEM faculty member who recently moved to another university was repeated throughout the interviews. A practical problem occurring at NMSU, as well as at many other universities, is that salaries offered to attract promising new faculty members often are out of line with the salaries of current faculty, creating difficult departmental relationships.

ADVANCE as a Strategy for Transformation

Evaluative Comments on Strategic Aspects of the Program

The faculty members and administrative leaders whom I interviewed were uniformly enthusiastic about the ADVANCE Program. They see the program as playing an important role in attracting and supporting women faculty and in helping to moving the university forward in its commitment to diversity. Respondents commented that ADVANCE is “targeting the right issues” and “is filling a great need.” Department chairs and deans are very pleased with the resources that ADVANCE provides to help them in recruiting and supporting new women faculty in the STEM fields. The components of the program seem very appropriate for addressing specific needs at NMSU.

A particular strength of the program at NMSU is its leadership. Administrators and faculty participants spoke very highly of the excellent leadership provided by Professor Lisa Frehill. They spoke of her energy, commitment, and organizational skills. They also praised the Project Coordinator, Pamela Hunt, for the efficient, competent, and thoughtful way in which she manages the day-to-day details of the program work. Dr. Frehill explained that she sees her role at this time as a catalyst. She believes it is important for her to be highly visible in connection with the project during this early period, and thus, she attends numerous meetings, has met with all STEM department chairpersons, and maintains an active liaison role with the senior leaders of the university. She plans that, over time, her role should become less prominent as the ideas and efforts associated with ADVANCE become embedded more deeply into the culture and work of the university. In my view as an evaluator, her approach to her current and future roles is very appropriate and strategic. At this time, she serves a visible “flag-bearer” for the program, which has ensured that ADVANCE is getting good attention at various levels and within various units of the institution. Over time, it will be important, as she plans, for others to

take on the program goals and its elements as their own commitments. Dr. Frehill's strategic approach concerning her own role, as well as her energy and excellent organizational and leadership skills, are very important reasons why the program is gaining visibility and respect.

Also noteworthy is the level of support that administrators are providing for the program. The Provost views the ADVANCE Program as a key ingredient in his broader strategic approach to helping the university diversify the faculty. I believe it is to the long-range advantage of ADVANCE to be viewed as a component of this broader institutional plan, rather than to be treated as a temporary, unconnected endeavor. I was particularly interested to note the enthusiastic support and commitment for ADVANCE expressed by the STEM department chairs whom I interviewed. They view ADVANCE as a strategic tool that is a great help to them as they work to bring more women into their faculties. The support provided by ADVANCE to supplement start-up packages and to provide release time and funds for research are the elements that most excite the department chairs as tools for attracting and supporting women faculty. One dean commented that his attention to early career faculty has often focused on those who are "floundering;" he values the ADVANCE program because it provides support to enhance the careers of a broader array of early career faculty (not only those who come to the direct attention of a dean because they have specific problems).

One significant outcome of ADVANCE, already becoming apparent, is that it creates various networks that were not previously in place. Several department chairpersons commented that ADVANCE-related meetings and committees are bringing them into conversations with other chairs and that such conversations do not typically occur. These opportunities to get together enable them to share information and encourage each other in their efforts to recruit women faculty and support those in their departments. Similarly, ADVANCE activities are providing women faculty across departments with opportunities that they would not typically have to interact and to get to know each other. Even the focus group that I conducted with early career STEM women faculty was an opportunity for several colleagues to meet and discuss experiences and challenges. As mentioned earlier, the early career women seemed to thoroughly enjoy their interaction and requested that regular brown-bag lunches be scheduled so they could continue to meet in the future. According to research on organizational change, transformation is aided by a diffusion model, in which ideas are spread informally as colleagues interact. The opportunities for interaction provided through ADVANCE activities—opportunities for interactions among women faculty at various career stages, among department chairs, and among men and women faculty members and administrative leaders who are committed to supporting women faculty—are important strategic components of the program.

Overall, I observed that NMSU does not appear to have as many institutionally-organized faculty development opportunities as some universities with which I am familiar. The Teaching Academy being planned may be one effort to expand professional development support for faculty. My sense was that aspects of the ADVANCE Program are especially

important because they do not duplicate other opportunities on campus, but, in fact, fill significant, unaddressed needs, especially as experienced by women faculty members.

Comments on Specific Components of ADVANCE

In this section, I offer comments about each of the various components of the ADVANCE Program. Since the program is in its first year, some of these components will be more fully developed over the coming months, and future evaluations should be able to focus more extensively on the outcomes of these efforts.

Recruitment and Start-Up Support and Funds: This component is very important and promises to have a significant impact. The Director and Program Coordinator have developed an efficient system for providing recruitment information and guidance to department chairs, monitoring recruitment processes, and making themselves available to meet with candidates. The department chairs expressed considerable appreciation for the kind of support they are receiving as they develop recruitment plans, commenting that the support is “excellent” and “is making a huge difference.” The recruitment workshop recently offered was also appreciated and perceived as helpful. The department chairs interviewed are particularly pleased that ADVANCE can supplement the salary and start-up packages offered to prospective women faculty members, since, they reported, NMSU often cannot offer salaries and start-up packages for equipment and instrumentation that are competitive with other institutions. The support for start-up packages is increasing their likelihood of competing successfully for promising women faculty members. Over the next several years, it will be important to track the results of these efforts at strengthening the recruitment process.

Faculty Development/Mentoring Program: The mentoring program is off to a good start, with early career and senior faculty members, as well as department chairs and deans, indicating that this program is filling a need. Specifically, the mentoring program addresses the issue of isolation that women faculty report, and provides role models for early career women who are considering how best to develop their lives as scientists. While some departments reportedly offer mentoring opportunities, the ADVANCE program provides more structure for mentoring relationships and ensures that those women in STEM departments that do not offer mentoring will have this opportunity. I was very impressed with the materials that have been developed to help mentoring pairs come to mutual understanding about the kind of collegial relationship that each will find most useful and enjoyable. Typically, in my experience, mentoring programs are intended to be useful but do not always provide good guidance as the relationships are established. I suggest that further evaluations review the impact and usefulness of the mentoring guidelines to those mentoring pairs who use them to develop their relationships. These materials, if they are found to be as useful as I anticipate, would be good products for dissemination to other institutions.

Several respondents mentioned that the availability of the mentoring program to male colleagues as well as female is strategically wise. This decision spreads the impact of the ADVANCE program. To date, a number of senior colleagues have indicated willingness

to mentor. I suggest that, even if all senior colleagues cannot be placed with an early career faculty member, other ways should be identified to include these senior colleagues in ADVANCE mentoring workshops and programs (I believe the plan is to include these volunteers in some way). Mentoring relationships can be as informative for senior colleagues as for the early career colleagues they mentor. Through such relationships, senior faculty members learn about the concerns and challenges confronting their junior colleagues. I see the involvement of senior faculty in mentoring relationships as an important strategy for changing departmental and institutional cultures.

In addition to mentoring opportunities, the faculty development component of ADVANCE will apparently also include workshops. A senior faculty member suggested that more senior women faculty should “step up” to help with this aspect of ADVANCE.

Research Awards and Release Time: Both women faculty members and department chairs believe the research awards are an excellent component of the program. Referring to a woman colleague in his department who has received one of the awards, one department chair commented that “it is enormously valuable and has brought her research to a whole different level.” It is useful that research awards can be used for a variety of purposes, depending on the need of the faculty member. For example, awards have helped one faculty member write a book, another engage in outreach activities in the public schools, and another attend a research institute. Several department chairs spoke of the “leverage” that is gained from these awards. That if, the ADVANCE awards can supplement other small college grants programs or be used as matching funds, enable researchers to purchase necessary equipment for laboratories, or support initial exploration to help with proposal development; each of these uses of research award funds helps scientists develop competitive proposals for larger grants. Since there are few other places in the institution to turn for small grant support, this program is addressing a significant need.

One early career faculty member who received release time through ADVANCE support during her first year suggested that it would be better to have such release time provided at a later semester. She felt that she was too inefficient her first semester to make full use of the release time, as she would be able to do during a later period when she was more established. Further evaluation of the impact of these research grants in the coming years of the ADVANCE Program may suggest various strategies (such as who can most benefit at what point in the career) that will optimize the impact of these grants.

Distinguished Visiting Professor Committee: Shortly before my visit, the first distinguished visiting professor had been to campus. I did not hear a great deal about this visit, other than that it was productive, so I cannot comment extensively. However, I am impressed with the guidelines for this program, which require that a visiting scholar foster interaction not only among campus groups, but also between university faculty, graduate students, and undergraduates, and K-12 students. Two comments about the Visiting Professor Program were made that may merit consideration. One faculty member suggested that the application for nominating a visiting professor should be as simple as possible. This colleague recommended that the more flexibility in bringing forward

names (such as through “grass-roots” conversations that result in suggestions for visitors), the better. An early career woman faculty member felt that men as well as women should be eligible as visiting scholars, because in some fields in which an early career faculty member may need help, there may be few women at the advanced level who could be invited. Here I only report these few comments. I did not hear enough perspectives on the visiting scholar program to be able to offer any specific recommendations. This aspect of ADVANCE should be considered more fully during a later evaluation when there is more of a track record with visiting professors.

Exit Interviews: My understanding is that the Director of ADVANCE plans to conduct exit interviews with women faculty in STEM fields who decide to leave NMSU. I think this will be a useful venue for learning more about the challenges confronting women faculty and how women faculty make decisions about whether to continue their careers in the academy. The results of such interviews should be reviewed in future evaluations.

ADVANCE Website: A few administrative leaders commented on the usefulness of the ADVANCE website. I too noticed that it is inviting and easily accessible. As program leaders highlight ADVANCE throughout the institution, the website is a useful vehicle for disseminating information about ADVANCE activities and opportunities.

Barriers/Issues to Consider

Discussion with participants, administrators, and ADVANCE staff highlighted a few barriers or challenges confronting the program.

Red Tape: Various aspects of the bureaucratic systems at NMSU create some challenges for managing elements of ADVANCE as well as for effecting change. Apparently the hiring process is quite complicated, which is difficult for department chairs trying to make competitive offers to prospective faculty candidates. The university accounting system apparently requires certain kinds of record-keeping and justifications which make managing the details of a program like ADVANCE somewhat onerous. Overall, some interviewees suggested that greater mutual understanding between academic staff and the university’s financial management staff would further the goals of employing a more diverse faculty as well as the specific management needs of the program.

Concerns of Some Male Faculty: Some male faculty members have expressed resentment or frustration that they are not eligible for the start-up and research funds that area available through ADVANCE for women faculty in STEM fields. One department chair commented that he understands such concerns, but that the university needs the resources and opportunities provided by ADVANCE to compete for women faculty. This kind of resentment suggests the need for continuing public relations about the importance of diversifying the faculty for the quality of the university.

Faculty Resistance: Some department chairs and senior faculty members noted that some established male faculty members in STEM departments hold “inflexible attitudes” and are less than cordial to female colleagues. Those observing this problem noted that, nevertheless, change is underway as women and more diverse faculty members join the university and as some of the established faculty who are not enthusiastic about these changes retire.

Recommendations for Enhancing ADVANCE

Suggestions Pertaining to Programs and Activities

The following ideas emerged during the interviews:

Information on Other University’s Program and Policies: Department chairs report that they would appreciate information about how comparable departments in other universities handle spousal hires, teaching and workload issues, and tenure flexibility. Such information, they believe, could help them develop strategies appropriate for their own departments.

Proposal Writing Sessions: Women faculty indicated that they would value workshops that focus on proposal writing. They would like to see examples of previously funded proposals, and would like to attend sessions led by colleagues who have served on national panels and/or who have been successful in submitting proposals to various agencies relevant to faculty in STEM fields. Faculty would appreciate having experienced faculty read and critique proposal drafts. Such sessions would be of value to both men and women faculty.

Examples of Successful Tenure Folders: Early career faculty requested that examples of tenure portfolios from successful faculty be available to serve as examples.

Time Management Sessions: Early career women faculty also would appreciate “substantial” sessions (“more than an hour”) on time management. Specifically, early career faculty are interested in “tricks to accomplish but not sacrifice quality” as they handle multiple tasks of writing, editing, grading, and other responsibilities.

Further Attention to the “Isolation Problem”: The early career women faculty members interviewed appreciate the support the ADVANCE Program is providing for their research and start-up packages. They also enjoyed the opportunity to meet over lunch during my evaluation visit to discuss their experiences in their departments and the university. They are requesting that the ADVANCE Program help them continue to have periodic meetings for discussion. Since research on early career faculty suggests that opportunities to interact with colleagues are very supportive and helpful, ADVANCE may want to offer regular times for early career women faculty members to interact informally (without a specific agenda) with each other and with more established women colleagues.

Credit for Mentoring: The senior faculty members who have volunteered to be mentors are pleased to help their colleagues through this activity. One or two of the senior faculty suggested that it would be helpful if there were some way that they could “get credit” for mentoring (though what form such credit would take was not specified).

Institutionalizing the Goals and Activities of ADVANCE

A number of administrators and senior faculty commented on the importance of focusing on the institutionalization process through which the activities and goals of ADVANCE can be further embedded into the university. Various suggestions were offered for deepening the institutionalization process over the coming years:

Encouraging Women to Assume Institutional Leadership Roles: Several respondents urged that the university and the ADVANCE Program strive to build leadership capacity among women who may have interests in department chair and dean roles. Women in leadership positions can serve as role models for more junior women and can speak out about the importance of support for women faculty. Perhaps leadership seminars can be offered for women considering leadership roles.

Keeping ADVANCE in Public View: Dr. Frehill’s attention to publicizing ADVANCE throughout the institution is applauded. The impact of her work could be further enhanced if she had the title of “Special Assistant to the Provost.” Such a title would convey to administrators and faculty members that she is engaged in very important work for the institution. There should also be consideration of whether she needs additional course buy-out in order to sustain the level of time and energy she is putting into ADVANCE. As I discussed earlier, this level of commitment from Dr. Frehill is a critically important ingredient in the success and impact of the program. In addition to Dr. Frehill’s efforts, one respondent noted that highly visible events, such as the reception to highlight ADVANCE held at the President’s home, are important ways to keep the program and its goals at the forefront of institutional attention. Opportunities to publicize and highlight ADVANCE (e.g., newspaper articles, announcements at university committee meetings, memos to faculty members and administrators) will continue to be important.

Rotating ADVANCE Committee Chairpersons and Members: One way to publicize ADVANCE-related opportunities and involve members of the university community in the program is through the committees that direct its activities. I recommend that committee chairs and members serve for specified terms, after which new colleagues can assume these roles.

Decisions about Departmental Eligibility for ADVANCE Awards: One person interviewed would like to see more departments eligible for such ADVANCE awards as start-up and research funds. Perhaps the needs and circumstances of interested departments should be reviewed annually to decide which departments are eligible for award consideration in the next year.

University Issues

As already discussed, several major policy issues concern women faculty (and undoubtedly are also important to many male colleagues): a pregnancy or family leave policy, childcare, spousal hiring, and tenure flexibility. These are significant issues which require consideration at the institutional level, and in fact, some of these issues are apparently already under discussion through various university channels. Policy decisions that address these concerns would be important factors for enhancing the workplace quality for women faculty members in STEM disciplines as well as other fields.

Summary

In my view as an evaluator, the ADVANCE Program at NMSU is off to a very good start. The commitment, energy, and organizational skills of the Program Director and Program Coordinator are key ingredients in the initial success of the program. The department chairs of the STEM fields are well informed about the opportunities provided through ADVANCE and are very enthusiastic about the program. Senior women faculty members are involved in ADVANCE committees, and established faculty members—both male and female—are volunteering to serve as mentors. The initial activities of each component of the program seem designed to capture attention and interest. The early career women with whom I talked are appreciative of the efforts to recruit and support them as they begin their work. Much has been accomplished during this initial period and the groundwork has been prepared for continuing and expanding impact.

EVALUATION OF ADVANCE AT NMSU

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Submitted by

**LAURA KRAMER, PH.D.
Professor of Sociology
Montclair State University
Upper Montclair, NJ 07043**

**(973) 655-7168
ak1921@fcc.net**

I. THE VISIT

From midday October 30 through November 2, the campus visit included individual meetings with twenty faculty, administrators, and professional staff members. These included the Provost, one academic dean (College of Agriculture and Home Economics), two Associate Deans (College of Engineering and College of Arts and Sciences) and an Associate Director (College of Agriculture and Home Economics), five department heads (from the science, technology, engineering, and mathematics, or “STEM” departments in all three STEM colleges), an associate department head (College of Engineering), five faculty members without administrative assignments (from all ranks, within the College of Agriculture and Home Economics and the College of Engineering). In addition, I met individually with the Principal Investigator, the ADVANCE Program Coordinator, and the New Mexico – AGEP [Alliance for Graduate Education and the Professoriate] Program Director and Program Coordinator. Most of these individuals simultaneously hold a variety of roles within ADVANCE, from membership in one or another subcommittee to the three Co-Principal Investigators. Some participate in the mentoring program, or have had members of their unit receive support through the ADVANCE program.

Based on a review of the plentiful materials supplied before the visit, I developed two semi-structured interview schedules, for individuals based within academic departments and for those with broader responsibilities. As the visit progressed, more individualized topics were explored. The major foci were the ADVANCE program, and particular aspects of it, and background questions about the individual’s unit and the larger community, to better inform the development of institutionally-appropriate recommendations for future program years.

Interviews ran from a minimum of forty five minutes to over an hour. Most would have gone on longer if we each had had more time available. The respondents were generally quite enthusiastic about the conversation-like interviews, and had observations about their experiences at NMSU (and, often, elsewhere) that were useful for understanding local perceptions and creating locally effective recommendations. The selection of individuals enabled me, within the limited time of the visit, to meet with people simultaneously representing a variety of campus units, at a variety of points in their careers, and with varied experiences with the ADVANCE program. By interviewing people in their own office, I was able to get a sense of the layout of the campus and the variation in physical environment in which people work.

II. DESCRIPTION OF NMSU

I began each interview by exploring the individual’s view of the distinctive characteristics of New Mexico State University I should understand in order to contextualize my assessment. For the most part, the relatively small size of the University is seen as positive in its impact on community life, permitting more interdepartmental interaction and student contact. Simultaneously, small institutional size is identified as

interfering with a full scale research program. The teaching (both the course load and the variety of courses that must be offered by faculty teaching in small departments) and service obligations interfere with the pursuit of funding, research, and publication. The ethnic and social class heterogeneity of the student body was usually mentioned as a source of work satisfaction, and often mentioned as a source of pedagogical challenge (because of the unevenness of students' preparation for college). Within the University, variation in disciplinary support has been shaped in part by its land grant status and the traditionally strong relationships between leaders of some divisions and leaders of state government. For example, while all three STEM colleges include new buildings, the College of Agriculture and Home Economics appears to have had a disproportionately active construction program, benefiting from the important and visible Extension Service responsibilities of the University.

The location of the University affects the faculty experience. Some STEM faculty benefit from proximity to related centers of research (e.g., White Sands), but many faculty mentioned the geographic isolation from other scholars in their field. Professionals involved in outreach (whether related to extension service or to student recruitment efforts) mention the location of the institution as a factor in their work (it is a drive of at least three hours to Albuquerque, where the overwhelming majority of the state's population is now located), as well as the very dispersed nature of the remainder of the state's population across its rural areas. Finally, the "two body problem" is more severe at NMSU than at institutions in larger metropolitan areas or communities with more academic and/or research and development institutions, offering greater employment opportunities for faculty partners.

Thus, the same factors make it difficult to recruit and retain strong scholars while they contribute to the institutional loyalty of many long-standing members of the community, and are seen positively (or at least with ambivalence) by more recent recruits. The relatively small size and a serious tradition of service and undergraduate teaching are obstacles to the level of research and publication expected of new faculty, and will discourage candidates with other options. When a field has a small pool of highly qualified female candidates, it is difficult to recruit to a relatively under-funded and teaching and service-intensive Research I institution. The University will have to recruit individuals who find appealing its unique combination of size, teaching mission, heterogeneous student body, and are enthusiastic about pursuing a research agenda despite the relatively resource-poor institutional environment.

Recent changes in the University's leadership bring energy and innovative ideas to the campus. Many I spoke with were optimistic about the potential for the future. However, there is also concern about the ability to turn the ideas into action, to make serious change without a stronger funding base, and without a rethinking of the decentralized decision making power which gives deans great autonomy. The appointment of department heads by the administration with only advisory input from department faculty contributes to a sense of the University as a set of more or less autonomous academic divisions, and encourages faculty skepticism about the potential for institution-wide transformation. While some individuals reported an informal

departmental authority, such that the administration would not appoint or maintain a head who lacked departmental support, others emphasized the system of heads rather than chairs without perceiving themselves and their colleagues as having a serious, though informal, say in their leadership. If the head is not accountable to the department, and the head does not consider a professional activity important, there is a lack of protection for the faculty member whose choice does not reflect the head's priorities. Unless the dean or other upper level administrators single out a particular activity to protect the faculty member, he or she must take very seriously the priorities set by the department head regardless of institution-wide policy statements. Correspondingly, if the academic dean is not inclined to prioritize any particular University-wide change initiative, the traditionally great authority of academic deans will likely translate into a lack of participation in that initiative by the department. This dimension of University organization has implications for the successful implementation of any campus-wide initiative; some relevant recommendations are made in section V, below.

III. ADVANCE: THE FIRST YEAR

By all accounts, the ADVANCE Program had an extremely successful first year. With no exception, each person with whom I met was very enthusiastic about his or her particular experiences with the program. A few had very limited experiences (e.g., attendance at one event sponsored by the program; participation in one subcommittee with a narrow and clearly delimited mandate). At the other extreme, some were broadly involved, formally and informally, with the program as it rapidly developed from the proposal's development to the news of its success and the need to bring it rapidly into reality.

The achievements of the first year can be seen as three pronged: (1) development of the ADVANCE infrastructure at NMSU; (2) leading in the design and support of recruitment initiatives to attain the first year's hiring goals; and (3) undertaking the activities aimed at improving the retention of female STEM faculty.

The infrastructure

Staffing: The ADVANCE Program was initially staffed by Pamela Hunt, Program Coordinator, a half-time graduate assistant, and, starting in August, a one-quarter time undergraduate work-study assistant. The graduate assistant was able to work in the program for only the first eight months, while another graduate assistant started in September working only quarter-time to assist Dr. Frehill in data collection and analysis. The successful recruitment of an excellent administrator (Ms. Hunt) was an important factor in explaining the effectiveness of the first year's functioning. The lack of a secretary and a cumbersome and decentralized accounting system too often took Ms. Hunt away from the tasks for which she is very well qualified (e.g., frequent communication with the campus community about ADVANCE's activities). Both of these problems should be rectified in the coming months. A full time secretary is expected to be recruited and in place early in the second year of the grant. The establishment of the office of the Vice Provost for Research has put the University on

track for a reorganization of, and increased effectiveness in its handling of accounting procedures connected to external funding.

Space: The first year's office space (provided at no cost by the College of Engineering and the Department of Chemical Engineering) is strategically located, at the center of the STEM departments. It is within the Department of Chemical Engineering and close to the Department of Mechanical Engineering. In one direction, it is a short walk from the buildings of the College of Agriculture and Home Economics, with five STEM departments, and in the other it is a short walk to the other engineering divisions, and the STEM departments in the College of Arts and Sciences. It is further from the social science departments, which is less than optimal for the Principal Investigator. Her home department is Sociology and Anthropology, the unit within which the grant is located. The excellence of its location is not matched by adequate size, unfortunately, and the Program will be moving early in its second year to a two-office suite. The new location is less desirable, in that it is further from the College of Agriculture and Home Economics, and a fair walk from the College of Engineering. The space (for which rent will be required) is well located on other dimensions: it is close to the offices of AGEF, which promises some useful pooling of resources, and it is near Dr. Frehill's sociology office.

Communication: ADVANCE has a web presence and has produced printed materials about the program for use on campus. Communication externally about the program at NMSU has also been achieved through participation in relevant professional meetings by both the P.I. and the Program Coordinator. Ms. Hunt's web skills have not been tapped as effectively as they should be, because of the labor-intensity of accounting-related duties (see below).

The organizational infrastructure: A key to the success of the first year has been the wide participation of members of the campus community in Program activities. A committee and subcommittee structure may look over-developed on paper. In fact, it serves well to maximize the number of people who feel a connection with the program, whose knowledge can be applied to program needs, and yet the structure minimizes the demands on people for time in activities only peripherally related to their interests and expertise. These groups were well designed to get work done; while numerous constituencies needed to be represented, the approach was to have representation on small working committees rather than creating overly large committees with a large set of mandates. For example, a member of one committee with a delimited agenda said that the committee structure worked really well. By having a small committee, he found that everybody's voice was listened to equally, and all members spoke up.

The committee/subcommittee system was repeatedly fine-tuned. For example, when a committee's assignment was successfully completed more quickly than anticipated, the program leaders reviewed the best ways to make use of the committee whose work load had turned out to be minimal. This organizational "tweaking" was only possible because of the excellence of the communication among people involved in the

committee structure, and the trust in the integrity, intelligence, and energy of the PI among others on campus.

I had expected to find some resistance to the complexity of the committee structure, and instead found that it maximizes the number of people identifying with program. Several people appreciated serving on a committee or subcommittee with a limited charge, such that their membership on it did not require more of a commitment than they were able (or willing) to make to the ADVANCE program.

Recruitment of female faculty

Training search leaders is an important facet of any initiative to diversify a faculty's composition. ADVANCE goals have combined well with the goals of the new administration to provide a workshop for search leaders on techniques for the more effective recruitment of people from non-traditional categories. People with whom I met were only inconsistently aware of the existing formal materials regarding search procedures. Because lines are not released simultaneously to all departments that eventually will run a search during the academic year, workshops do not include all search heads. Because most departments do not hire each year, and a search head this year may not have served on a search committee for many years, the training system must be decentralized to reach everyone. The P.I. has been in close communication with the leaders of all STEM searches.

Supporting female candidacies has been most important through ADVANCE's contribution of start up funds to the package constructed by the head of the hiring department. There has been uneven application for these resources, notably in the absence of any applications from the College of Agriculture and Home Economics. However, this will undoubtedly change as the reality of the resources and their importance in effective recruiting has become more widely known. Having created the procedures for soliciting these funds before their availability was fully appreciated, the ADVANCE program will be prepared for the greater pressure for their allocation. During the first year of the grant, five women joined the faculty of the STEM departments at NMSU, representing one third of all new faculty hired into the STEM departments.

Work-family issues appear to continue to affect the hiring of women more than of men into faculty positions. At the request of the Provost, Dr. Frehill prepared a report on the "two body problem" (how to attract and keep a professional who has a professional partner also needing work). Dr. Frehill's report was based on interviews and/or correspondence with more than two dozen administrators and faculty on campus, and can serve as the cornerstone for policy reformulation. At this time, the relative autonomy of personnel funding at the college level undermines the creation or earlier-than-planned filling of a position for a candidate's partner. Thus, Dean A may be eager to hire a candidate, but the candidate's partner is in a field housed in Dean B's college. If financing that hire is entirely from Dean B's budget, it is not likely that Dean B will support the hire.

Retention of female faculty

The mentoring program has gotten underway with great success; 17 faculty and administrators signed up to be a “mentee,” and 18 volunteered to serve as mentors. The development of a “mentor at large” role (currently filled by four people) allows a mentee to have multiple mentors, drawing on different, specific areas of expertise. Those faculty receiving grants were automatically assigned mentors, while all other faculty (female and male) were invited to join the program. Starting with a useful guide from another institution, the P.I. and the ADVANCE staff tailored the materials and the matching system to a more appropriate system for NMSU. As more feedback is received, the program staff are fine tuning the mentoring arrangements.

In my interviews I learned that most faculty had no comparable experience at NMSU. Some reflected on informal relations with a colleague or two in their department or another department. Others revealed feeling left on their own to learn their way around. Some department heads take very seriously their mentoring of newly hired faculty, even meeting with a new colleague weekly for the first year. Research on mentoring programs elsewhere has established that a link to someone outside one’s department provides a unique set of advantages and should be a feature of all new faculty programs, regardless of the quality of the mentoring provided within one’s department. The mentoring program will be an important feature of the retention initiative associated with ADVANCE.

Workshops sponsored or co-sponsored by ADVANCE are successful ways to overcome the feeling of intellectual isolation that is one of the shortcomings of the Las Cruces location. For those only generally interested in a topic, there is an enrichment of intellectual life (sometimes, of course, leading to a new way of thinking about some aspect of one’s work). For those whose research shares common ground with the guest, the visit may yield information about funding and publication opportunities that are less forthcoming without face-to-face acquaintance.

Bringing in carefully chosen speakers (on research, teaching, or service-related topics) was raised by several people as an example of a useful contribution of the ADVANCE program. The speakers are notable women, which is useful for those fields in which a shortage of women at the University is assumed to be inevitable because of a lack of women in the field overall. These visitors should become part of the professional networks used in NMSU recruitment efforts.

Research and travel grants provided through a competitive process by the ADVANCE program have been important in perception and in fact. The process of application for funding is being fine tuned, and will need further revision as larger numbers of applications are received. Even in the first year, it has proved useful as a training experience for some of the junior applicants, and (when received) as an organizing piece of support around which others can be pursued. The travel grant is particularly important given the location of NMSU.

The administration of the ADVANCE program has arranged that for each research and travel grant made, the grantee's academic department will receive a portion of the indirect costs. This arrangement will help to ease resentment (some of which is inevitable) among male colleagues who are themselves ineligible for the grants.

IV. CHALLENGES FOR YEAR TWO

ADVANCE infrastructure

In year two, the ADVANCE program should work towards identifying University offices other than ADVANCE to serve the functions that ADVANCE has envisioned and sometimes provided in year one. The ADVANCE program leaders should continue to be involved in these initiatives, but integrating these functions is part of the institutional transformation that ADVANCE is funded to spearhead. Examples of activities that should not be located primarily in ADVANCE: policy research and formulation (e.g., on the "two body problem") which can be addressed by the Office of Institutional Research and Planning; preparation of materials to routinely be sent to candidates, revision of the applicant screening record form, for reporting to Personnel, so that a substantive explanation will be required if no nontraditional candidates have applied, or none has been brought for an interview, or none has been offered a position. Workshops should be held for all faculty, including training on the possibility of "target of opportunity"; all faculty members attending conferences should be seen as potential recruiters.

The mentoring program should be enlarged. The ADVANCE leaders will need to involve more individuals as mentors, and find ways to increase the participation of potential mentees. This facet of ADVANCE is open to the participation of men, in both roles, and provides an excellent resource for men in the University community. Increasing the involvement of men in both roles should be a goal for the second year. Finally, those who do volunteer to serve as mentors need to be screened and should benefit from training to maximize their performance in the role.

Committees should remain dynamic, exploring new agenda items for those which accomplished their agenda in the first year, and fine-tuning procedures (e.g., for allocating travel and research funds). The inclusion of men in committees should be expanded, and the exploration of the extension of ADVANCE-related benefits (such as the mentoring program) to male participation should continue.

Women in administration: a goal that needs strategies

One program goal which needs more attention in the second year is the increased presence of women in academic administration (particularly in line, rather than staff positions). The ADVANCE challenge will be to motivate the campus to work together on this goal. Thus, the creation of additional routes for faculty to gain administrative experience deserves consideration. For example, a fixed-term appointment as an assistant to a central administrator enables access even for those women whose own department is unlikely to have leadership roles open up in the foreseeable future.

Any institution trying to transform itself to one with equal administrative opportunities for women and people of color must take extra care to ensure the openness of all administrative searches. Skepticism about the ability of “outsiders,” or non-members of a perceived “old boys” network must be overcome to maximize the exploration of administrative opportunities by women faculty.

Recruitment of women faculty

Search committees need to be held uniformly accountable for their ability to include women at all stages of the search process.

ADVANCE should spearhead the development of appointments through a “target of opportunity” approach. Based on my interviews, this approach seems to be an attractive one with many people. The challenge for ADVANCE will be to help make this happen without having to draw too heavily on its own resources to do so; the Personnel office and the Provost’s office should lead this initiative.

ADVANCE should explore using some of the travel grant budget to contribute to recruitment-related activity by NMSU faculty attending professional meetings. It may be appropriate to extend this funding supplement to male as well as female faculty who agree to pre-travel training regarding effective outreach.

ADVANCE leaders should continue to pursue University wide strategies for reducing or solving the “two body problem.” This has an obvious benefit for recruitment, but will also contribute to retention of women faculty, by signaling clearly the seriousness of the campus commitment to women in STEM.

Retention of women faculty

ADVANCE should sponsor or (with other campus units) cosponsor more frequent workshops for all faculty, selecting topics known to be of use to women faculty, but recognizing their likely appeal to some men as well.

The shortage of resources in some departments leads to a full load of teaching and service for new faculty, despite a general policy that first year faculty be given some release time to get their individual programs up and running. The ADVANCE program will need to lead an effort to find resources that makes this protection universal for new faculty (female and male).

During the interviews, it was clear that some women faculty are so used to making their way professionally without adequate support that they do not readily take advantage of some of the non-monetary offerings of the ADVANCE program. This is associated, in research elsewhere, with burnout and attrition from academia among members of nontraditional, or underrepresented demographic groups. ADVANCE needs

more aggressive outreach to those faculty who have not made use of their programming, in the interest of their benefiting from that programming as they pursue their career goals.

V. RECOMMENDATIONS

Reduce decentralization

Centralization of administrative decision-making represents a break with University tradition. However, some movement in that direction should have a major positive impact on various factors that affect faculty recruitment and retention, as well as the creation of entry-level administrative opportunities for faculty women. Thus, the institution-wide policy that gives first year faculty a reduced teaching load should be enforced. Currently, departments with particular faculty shortages are unable to extend this to new faculty; simultaneously with enforcing the requirement, the central administration must provide sufficient resources for departments to function within it.

Each STEM college should be accountable to the central administration for the college level achievement of hiring goals and participation in University-wide transformational activities.

Centralization of administrative and support services should save enormous amounts of time for accounting and personnel-related activities. The procedures for setting up cost sharing accounts must be streamlined. While centralized oversight will not guarantee greater efficiency, it should supply the leadership for fundamentally revising what is currently a terribly time consuming process.

The Personnel office should spearhead the development of recruitment materials related to the work-family challenge (such as information about residential areas and schools); materials for the ongoing training of search committee members; reporting forms that require specific explanations for the lack of female candidates in the interview list and/or lack of offers to female candidates. The Office of Career and Placement Services is already able to provide information to help partners find employment in the Las Cruces area. The P.I. has spoken to the head of that office, who is eager to be part of the group of recruitment related sites on campus.

With ADVANCE emphasizing the goal of administrative opportunities for women, a centralized overview of more effective ways to develop such opportunities, and for ensuring that full searches are carried out (rather than the perception that appointments to interim positions slide into permanent appointments without open recruitment).

A more centralized structure for allocating and financing faculty lines, use of sabbatical savings, and so on, will facilitate the pooling of resources that can finance a “target of opportunity” offer or lead to the hiring of a partner of a sought after candidate.

ADVANCE itself has offered some useful examples of the value of centralization (e.g., the recruitment workshop); this should serve as a useful model of the benefits of selective centralization.

Keep the program dynamic

ADVANCE has put in place a wide variety of programming and decision-making structures. As well as these have worked, it is important that the program remain dynamic as it moves into the second year. First, this will add to its effectiveness with the continued replacement of less effective strategies with those that have been more effective. But it will also be necessary to keep the program dynamic because the environment is changing in part as a result of ADVANCE itself, in part as a result of the changes in the higher administration of the University, and with the generally dynamic nature of the environment of higher education.

It is also important that the dynamic nature of ADVANCE be perceived across the campus, because this will encourage people to see themselves as having a potential role even if they were not involved during the first year, and it will establish that the program is exciting and innovative as a rule, rather than simply in its first year of functioning. During my interviews, the energy and the surprising initiatives taken by ADVANCE were important features in positive reactions to the program from the people I interviewed who were not very involved in ADVANCE. Thus, keeping a dynamic image, and reality, is important for keeping the high level of interest and regard that the program has developed over its first year.

Library space

Space for faculty to work without interruption on campus would be particularly useful to individuals balancing work-family demands. A home office is often impractical; children or other household members interfere with concentrated research. Whether or not a department has an “open [faculty office] door” policy, working in one’s own office is not usually an effective plan. Particularly when women are scarce as faculty members, they find people disproportionately turning to them for advice. Some women faculty find it hard to turn away women students, often remembering their own feelings of isolation as women students in male dominated fields. Male colleagues also sometimes turn to females for advice (whether or not it is meant or seen as appropriate) in areas they are thought to have special expertise (e.g., handling a problem with a female student; selecting a gift for the department secretary). Within U.S. culture, a woman turning away a visitor will usually be judged more harshly than a man doing the same thing; expectations that a junior woman colleague will be sociable may make it more costly (in terms of colleagues’ judgments) for her to protect her office time. Even when a person is able and willing to turn away visitors to the office, the interruptions often undermine the effective use of time for research and writing.

A faculty reading room in the main library, or perhaps in the Branson engineering library, wired for laptop use, would provide a space to which many could retreat for some

regular portion of their time on campus each week. It would also provide a space for building interdisciplinary community. Women who are underrepresented in their own department might see this space as a place for contact with others in the same circumstance, and might follow their individual work sessions with a cup of coffee and community building. Men would also benefit from such a space, but are expected to have less need for it because of their relatively lesser demands (on average) from those “dropping in” to their offices. While the facilities needed for particular research projects make it unlikely that a researcher can move all her or his scholarship to a faculty reading room, the space would add to the available options.

Communication

With a larger staff, the ADVANCE program will benefit from the communications skills of Ms. Hunt. Campus-wide, more detailed information should be easily available about what the program aims to accomplish, what activities it is involved in, and how individuals might choose to participate in ADVANCE as it continues to evolve. With this information available through its web site, ADVANCE itself will enhance the University’s recruitment efforts directly.

Communication through vehicles developed by the program (such as a hard copy or electronic newsletter) will let people share solutions; a division with success in a difficult area (e.g., recruiting women from a small pool) can post descriptions of the strategies it found most effective.

Communication about the program will make its benefits to the community rather than to women only, clearer. For example, it is a good way to inform people about the cost-sharing that each department benefits from when one of its women faculty succeeds in an ADVANCE grant competition.

Workshops

More frequent workshops, a challenge mentioned above, can be offered without major financial resources. If the on-campus expertise of faculty and administrators is tapped, this is a low-cost event (refreshments should be provided, of course). For example, a workshop on “how to decide when to say no, and then how to say it” would be useful for junior faculty in demand to bring their fresh participation to committees, but who need to get research and writing accomplished for their academic future. Workshops like this could be scheduled several times a semester. The success of such events should not be measured in the size of the turnout, but in the creation of a sense of community and in the contribution to the career success of those who attend. Outreach to speakers from campus who are known for particular professional skill (e.g., committee service, teaching, time budgeting) is another way to extend the reach of ADVANCE as it makes itself and its goals even more widely known

Encouraging administrative exploration by women

In addition to working with the administration to develop diverse routes to administrative experience, and offering mentoring for people interested in administration, the ADVANCE program could offer a workshop on the crossover from faculty to administration, and create a list-serve with information about short-term training opportunities elsewhere.

Increase men's participation in ADVANCE

Various recommendations have been made above that are based on the increased participation of men as participants in the activities and infra-structure of ADVANCE. While start-up and research grants are not to be made available to male applicants, male involvement in their allocation will add to an understanding of the high quality of the recipients. Partial funding for travel that has a recruitment dimension might be possible for male applicants, and would help in the development of more aggressive conceptualizing of recruitment possibilities. Men are effective mentors of junior colleagues, and would make useful contributions as presenters at campus workshops. If all new faculty were assigned a mentor, as they are on some campuses, both women and men would benefit, and the goals of institutional transformation would be facilitated.

Development activities for support staff

ADVANCE should take an active role in locating information about staff development opportunities that would enhance performance of the support responsibilities mentioned above (e.g., facilitating the setting up of accounts; designing a more active role for the Personnel office in helping search committees reach hiring goals).

VI. CONCLUSIONS

The program at NMSU has gotten off to an impressive beginning. The attention of many on the campus has been focussed on issues of subtle and not-so-subtle barriers to the successful integration of women in the STEM fields. For those aware of the program's multi-faceted activities, the seriousness of its transformative goal has become apparent.

Trying to fit a nontraditional (female and/or person of color) STEM professional into a traditionally white, male field is often likened to trying to fit a round peg into a square hole. Historically, campuses have looked for candidates from nontraditional groups who can fit well into the traditional shape of things, rather than rethinking the traditional institutional arrangements. In many ways, the ADVANCE program truly strives for the latter (for example, the important symbol and practical act of providing child care at weekend workshops). As mentioned earlier, the program's initiatives also include more mainstream integration initiatives, such as, broadened outreach in searches, provision of information about the local area for candidates' partners, organization of

occasions for sociability to foster the development of support networks among nontraditional faculty.

Seeing these activities, some members of the University community have not yet noticed or understood the more institutionally transformative goals of the program. It should work to the ultimate achievement of that transformation that the first year so effectively established the depth of understanding and appreciation for the strengths of NMSU among the ADVANCE leadership, creating an atmosphere of trust in the program across the campus.