

The University of Texas at El Paso
NSF ADVANCE PROPOSAL
PROJECT DESCRIPTION

1 Introduction

The NSF ADVANCE program recognizes that, if the United States is to remain intellectually and economically competitive, there is an urgent need to diversify the academic workforce by increasing the representation and advancement of women, including underrepresented minorities (CAWMSET, 2000). THE ADVANCE Institutional Transformation program specifically supports innovation that creates positive and sustained change in academic climates.

The University of Texas at El Paso (UTEP) proposes to contribute to this national effort by implementing an institutional change initiative that can serve as a model for other institutions of higher education. Achieving sustained workforce diversity is not a short-term program, but a long-term process. Strategies for facilitating diversity in the last 20 years have come to focus on building relationships and fostering opportunities for ongoing organizational adaptation of policies and processes that fulfill individual needs as well as organizational goals. The notion of diversity in organizations increasingly has come to focus on the uniqueness of individuals, not on the differences among them, so that a collegial, productive environment can be created for anyone--and everyone. As a form of organizational change, facilitating diversity depends upon organizational commitment and communication.

Commitment is necessary because effective organizational change, which solves identified problems and creates solutions that endure, takes time. Communication is critical because it is the process through which needs are identified, strategies are created, plans are implemented and ultimately evaluated. In other words, leading such change is a processual journey, and the quality of the product is integrally related to the quality of the processes that create it.

Consequently, UTEP's *Initiative for Institutional Change* includes the following components:

- a policy and recruitment process that proposes faculty support and retention policies, supports recruitment efforts, and provides research support;
- a faculty development process that helps faculty define a holistic and balanced academic career;
- a collaborative leadership process involving faculty throughout the participating colleges, to identify and support innovative leaders, whom we refer to as *change agents* in this proposal, share best practices, and facilitate improvement of departmental climates;
- an evaluation process that includes both formative and summative self-assessments and review by an external advisory board;
- an institutional action board that initiates policy change, defines strategies for change, and oversees all grant initiatives.

2 Vision, Goals and Impact

Our vision is that implementation of the integrated processes described above will lead to institutional change, promoting community on campus through collaboration, and creating social capital through communication, while facilitating employment opportunities and career advancement for women. Our goal is to apply, refine and disseminate this *Initiative* to increase the representation and advancement of tenure-track/tenured women at UTEP and to share its components with other institutions. Our hypothesis is that the innovative structure of the *Initiative* will allow us to realize our vision and goals. We are confident about achieving our goals because the growth in undergraduate enrollment and doctoral programs, as well as the number of projected retirements, have led the UTEP Provost to estimate that up to 275 faculty will be hired in the next five years. Such ambitious plans will require faculty recruitment and retention. The university's commitment to the ADVANCE grant is that the faculty must be as diverse as they are talented.

12:12 PM

9/16/2002

There are a number of ways that the *Initiative* will impact the ADVANCE goals. The first is that the *Initiative* and resulting Best Practices will be disseminated to the UT System and beyond. The second is the *Initiative* will serve as a model to our own minority students and encourage them to choose academic careers. Finally, UTEP is in the unique position to impact diversity in the national academic workforce because of our large number of Hispanic faculty and students. The *Initiative* will be of particular interest to universities seeking to increase the representation and advancement of minority female faculty.

3 Overview of UTEP

The University of Texas at El Paso (UTEP) has long been recognized as a national leader in the education of Hispanic students. Founded in 1914 as the Texas State School of Mines and Metallurgy, UTEP is the second oldest academic component of The University of Texas System. From its inception as a mining school, UTEP has grown into an urban university offering bachelor's, master's, and doctoral programs to the residents of far west Texas and northern Mexico. UTEP is fully accredited through the doctoral level by the Commission on Colleges of the Southern Association of Colleges and Schools. The University consists of six colleges (Business Administration, Education, Engineering, Health Sciences, Liberal Arts, and Science) and the Graduate School. More than 80 baccalaureate and 72 master's degrees are currently authorized, as are eight doctoral degrees, in Geological Sciences, Computer Engineering, Materials Science and Engineering, Psychology, Environmental Science and Engineering, Biological Sciences, History (with a focus on the U.S-Mexico borderlands), Educational Leadership and Administration.

Because of its location, and the quality of its academic programs, UTEP is in a unique position to contribute significantly to the production of Hispanic professionals and to develop the future Hispanic leadership of this country. In Fall 2002, the University enrolled 17,232 students, an all-time record enrollment and an increase of more than 6 percent over Fall 2001. More than 81 percent of the University's students come from El Paso County; more than half of the County's high school graduates who choose to attend a public four-year university enroll at UTEP. UTEP's ethnic composition has come to mirror that of the community it serves: today nearly 70 percent of UTEP's students are Hispanic, compared to less than 30 percent less 20 years ago. Other under-represented minorities are enrolled in proportions paralleling their representation in the community (African Americans, 2.4 percent and Native Americans, 0.3 percent). Mexican nationals, most commuting from homes across the Rio Grande in Cd. Juarez, comprise 10.4 percent of UTEP's student population. Of most direct relevance to this ADVANCE proposal is the fact that UTEP is also a majority-female institution. In Fall 2002, approximately 55 percent of UTEP's students are women.

UTEP receives national visibility for its commitment to combine access to groups historically under-represented in higher education with excellence in instruction and the quality and competitiveness of its graduates. In 1993, UTEP received the Institutional Achievement Award from the National Science Foundation's Directorate for Education and Human Resources for its efforts to increase under-represented minority participation in mathematics, science, and engineering; and in 1995 NSF named UTEP a Model Institution for Excellence (MIE). According to a recent study (Baker, 2000), UTEP leads the nation in the production of Hispanic baccalaureate degree recipients who go on to earn doctorates in science and engineering. During the period studied by Quintana Baker (1994-1997), 44 Hispanic graduates of UTEP received their doctoral degrees. Twelve of those were women, making UTEP a national leader in the production of Latina Ph.D.'s.

4 The National Climate for Women: Academic Diversity

Studies on faculty retention and advancement across the nation have shown that women's and minorities' experiences and perceptions of academe are quite different from those of their white male colleagues (Johnsrud, 1993, 1994; Harper 2001). Women are more often found in entry level positions, with women scientists and engineers poorly represented across the board, from few at the entry level to extremely few in the tenured ranks (Kulis, 1998; Sonnert, 1996; Fox, 1996).

12:12 PM

9/16/2002

For women and minorities, the decision to leave or stay at an academic institution most often hinges on their satisfaction with working conditions, whereas white male faculty report that salary and professional opportunities are most likely to result in a decision to leave (CAWMSET, 2000; Amey, 1992). It is clear that simple salary adjustments to faculty who intend to relocate are insufficient to retain highly qualified women and minorities, since these are not the issues of greatest concern to them in their academic lives.

Women mention that workplace satisfaction is affected by work conditions, including factors such as: being actively discouraged from participating in departmental and institutional decision-making (Trower, 2002); having to succeed by playing by even more stringent rules than their white male colleagues; lack of attitudinal support for their research (Wenzel, 1994; Johnsrud, 1993; Honeyman, 1994); non-collegial and non-collaborative climates within the departments; greater social isolation; difficulty balancing teaching, research and service because they spend more time on teaching and service than their colleagues (Johnsrud, 1993; Olsen, 1993; Carnegie, 1990); lack of mentorship (Borman, 1998; Beaman-Smith, 1996); lack of guidance on tenure expectations and realities; alienation from the institution; lack of opportunities in research; lack of respect from colleagues; lack of support from peers and the administration (Trower, 2002; Wenzel, 1994; Johnsrud 1993; Borman, 1998); and dual career situations where the spouse did not get assistance (Wenzel, 1994). Minority women express more dimensions of dissatisfaction with work conditions than their white female colleagues (Aguirre-Adalberto, 1994).

Women leave academe in far greater proportions than their male colleagues (Honeyman, 1994; Brown, 1995). The balance of family and career is harder for women than for men, slicing into the time they have available for research and publication and often prompting them to leave before attaining tenure (Wilson, 2001; CAWMSET, 2000, Finkel, 1994). Women also indicate that the lack of women role models and the perception that a woman must give up any hope of a personal life in order to succeed as a scientist is a major reason why graduate students and junior faculty women leave (Sonnert, 1996).

The realities of the lives of women in academe lead to a feeling of marginalization (CAWMSET, 2000; Borman, 1998), which grows greater as women progress in their careers past tenure. While junior women initially believe they are treated equally, senior women point to subtle patterns of discrimination and neglect that affect satisfaction with working conditions at their institutions (MIT, 1999).

5 Current Climate for Women at UTEP: Academic Diversity

In preparing for this grant, the co-PIs made numerous efforts to understand the climate at UTEP. We convened focus groups that involved all ranks of faculty. The resultant findings, along with the Evaluation Report from UTEP's Faculty Mentoring Program for Women (FMPW) and data provided by the Center for Institutional Evaluation, Research, and Planning have provided a baseline that will be used for assessment of this project.

5.1 UTEP's Faculty Mentoring Program for Women

The evaluation of UTEP's FMPW revealed that junior women faculty face six main barriers or challenges:

1. Tenure: uncertainty about tenure rules and realities; concern about the secrecy of the process; uncertainty about how to develop documents for tenure; stress in learning to meet the research demands.
2. Integration and networking: feelings of isolation; difficulty meeting people outside their department; concerns about the gap between senior and new faculty (particularly in disciplines where new directions have become popular); not knowing how to connect with Deans and Chairs.
3. Information and resources: setting up research labs and obtaining access to space and equipment; frustration with the bureaucracy and how to navigate through it; uncertainty about available technology for teaching and departmental expectations of its use.
4. Acculturation: understanding the student body; uncertainty about the politics of the institution or their

12:12 PM

9/16/2002

department; the difficulty of inventing new courses without sufficient departmental support.

5. Balance: time required for teaching; difficulty thinking strategically because of the many daily demands on them; they worry about finding time; concerns about the publication process.
6. Hard Realities: concerns about spouse finding employment in the region; lack of money for travel to conferences; receiving assignments of classes not in their specialty or at the last minute.

5.2 Focus Groups

Two gender-based focus groups, comprised of all ranks of UTEP faculty were conducted in preparation for this grant. The primary focus was to determine whether there is a gender-biased response to the questions: What are the essential barriers to success and emerging as a university leader? What factors would cause a faculty member to leave the institution?

The results are aligned with national findings. The focus groups reported the following barriers:

1. Balance: UTEP women indicated more strongly than men that the large number of student demands on their time presented a barrier to success, and that balancing teaching with research presented a significant problem. When asked about the issues in finding balance between life and work, both groups responded negatively, with women at a significantly higher level of dissatisfaction than men.
2. Tenure: Men were slightly more positive than women on clarity of tenure expectations, possibly indicating that informal mentoring occurs more often for men than women. Women also indicated more dissatisfaction with questions of politics in the department and lack of support from the Chair.
3. Leadership: When asked about opportunities for decision-making and access to leadership positions, women were more likely to perceive barriers than men. Both groups indicated that there is no structure for fostering leadership and that incentives for becoming a chair were insufficient.

The focus group findings on reasons for leaving are as follows:

1. Men: Men were more likely to mention research support, salary and professional advancement.
2. Women: Women, while mentioning research support as very important, were more likely to indicate balancing demands of teaching, research, service; isolation; and lack of collegiality, as reasons to leave.

5.3 Statistical Data and Programs

Table 1 shows the number and percentage of female and minority faculty compared to the total number of UTEP faculty for the period 1992-2001. The focus of our proposal is in the departments, listed in Table 1, that fall under the purview of the NSF. The Colleges of Health Sciences and Education are not included because they have more than 50% women.

For the participating groups listed in Table 1, leadership consists of two female assistant or associate deans and three female department chairs. In addition, in the university at large there are a number of women in leadership positions including PI, Evelyn Posey, Dean of the University College, Dean of Education, interim Vice President of Finance and Administration, and the university president. A focus of the grant is to nurture diverse faculty toward leadership positions in order to improve these numbers.

With respect to gender equity, Table 1 indicates that there has been some progress in Engineering and Science. There has been substantial progress in achieving ethnic diversity. This reflects the effect of commitment, core values, and leadership established at UTEP. These practices and principles, as well as the diverse composition of our faculty, will give us momentum toward achieving the ADVANCE goals.

Table 1. Tenured/Tenure-Track Faculty Statistics

COLLEGE	DEPARTMENT	1992			2001		
		TOTAL	% FEMALE	% MINORITY	TOTAL	% FEMALE	% MINORITY
SCIENCE	BIOLOGICAL SCIENCES	18	11		23	22	
	CHEMISTRY	12	0		11	9	
	GEOLOGICAL SCIENCES	13	31		14	21	
	MATH. SCIENCES	25	8		21	19	
	PHYSICS	12	0		7	14	
	TOTAL			10	*		18
ENGINEERING	CIVIL	9	0		11	0	
	COMPUTER SCIENCE	7	0		9	33	
	ELECTRICAL	17	0		15	7	
	MECHAN/INDUSTRIAL	14	7		14	0	
	METALLUR./MATERIALS	6	0		8	0	
	TOTAL			2	*		7
LIBERAL ARTS	COMMUNICATION	8	50		8	38	
	LANGUAGE /LINGUISTICS	21	24		14	21	
	POLITICAL SCIENCE	17	24		15	27	
	PSYCHOLOGY	14	14		13	23	
	SOCIOLOGY/ ANTHRO.	14	29		12	33	
	TOTAL			26	*		27
BUSINESS ADMIN.	ECONOMICS AND FINANCE	11	9		11	0	
	MARKETING/MANAGE.	11	18		11	27	
	TOTAL			14	*		14

* These figures are being verified by UTEP's Center for Institutional Evaluation, Research, and Planning

6 UTEP's Initiative for Institutional Change

Greater institutional efforts must be made in the culture of academe in order to facilitate the integration of women and minorities and to minimize the marginalization that leads to loss of potential leaders at institutions of higher education. UTEP's *Initiative* builds on what we have learned about the current status of women at UTEP and the national context to initiate processes that will result in institutional change in a comprehensive manner. In addition to marginalization, the specific barriers that we target include: workplace and workforce conditions, achieving balance in work and life, and excelling in research, teaching, and service.

6.1 Description

UTEP's *Initiative for Institutional Change*, as depicted in Fig. 1, is an integrated approach that builds commitment, fosters communication, creates strategies, and implements processes. The arcs in the diagram represent formal flow of communication among the components of the *Initiative*, academic decision-makers, and faculty. Included in the *Initiative* are external and internal evaluations that provide a feedback loop for quality improvement at the process, program, department, and university levels.

The *Initiative* consists of Action Components comprised of four processes that focus on policy and recruitment, faculty development, and collaborative leadership; an Evaluation Component that provides internal assessment; an Advisory Board that provides external assessment; and an Institutional Action Board that initiates policy change, defines strategies for change, and oversees all grant initiatives. The grass-roots coalition established by the *Initiative* will sustain the workforce diversification process, and be in place to work on other issues requiring significant organizational change.

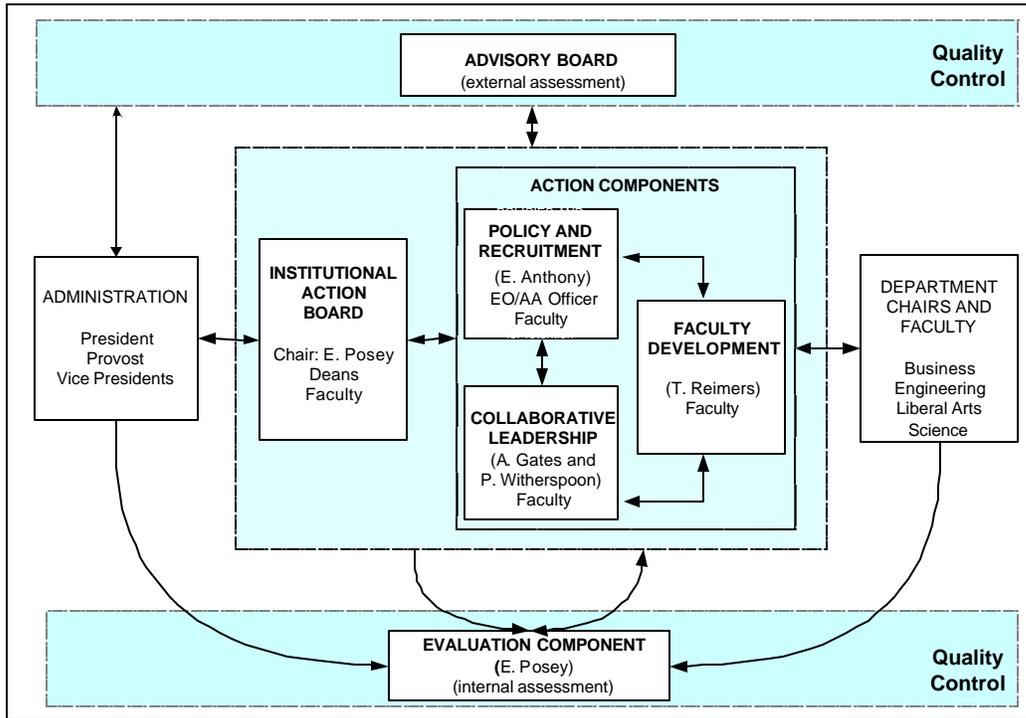


Figure 1. UTEP's Initiative for Institutional Change.

The co-PIs developed the *Initiative* from our personal experience in leadership at UTEP and the literature on organizational transformation, including John P. Kotter's eight-step approach in "Leading Change: Why Transformation Efforts Fail," (Kotter, 1998) that is presented in Fig. 2. To receive feedback on how to plan for an effective initiative, we met with Judith Craven, M. D., a member of the UT System Board of Regents and Chair of the Regents Special Committee on Minorities and Women, and we also sought information and suggestions from the President, Provost, and Deans.

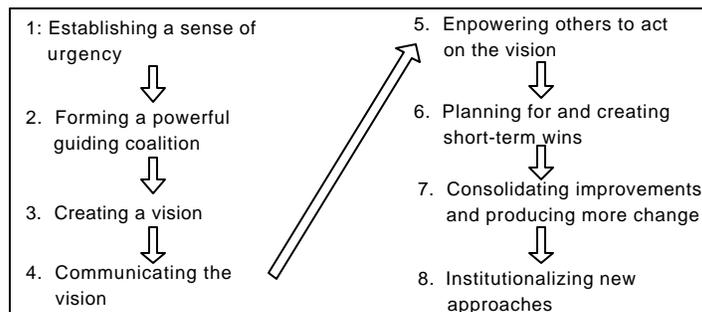


Figure 2: Eight steps to transforming an organization (Kotter, 1998, p. 7).

12:12 PM

9/16/2002

The sense of urgency for increased workforce diversity has been established at a national level by the ADVANCE program, at the state level by initiatives such as the UT System Board of Regent's Committee on Minorities and Women, and the Texas Higher Education Coordinating Board "Closing the Gaps" report, and on this campus by our vision statement that emphasizes diversity.

Institutional transformation is an iterative process. In planning this proposal, we formed a coalition consisting of the co-PIs, deans, administrators, and faculty. We created the vision described earlier by communicating with change agents, and by conducting faculty focus groups. The second iteration will, with the help of the grant, enfranchise a larger group into the coalition and communicate the vision more broadly. We will empower our faculty and administrators to act, and will create short-term successes through the action components, e.g., development of policy and recruitment of faculty. We will codify best practices that will consolidate our improvements, and work towards ensuring sustainability. What we learn from each iteration will establish continuous refinement, thus ensuring that not only UTEP is transformed, but that we have a documented process for enhanced workforce diversity at other institutions.

6.2 Action Components

6.2.1 Policy and Recruitment

At both the national level and at UTEP, there are two recurring themes concerning barriers to female recruitment and retention: 1) institutional impediments, which include lack of guidance, role models, and support, and 2) the problems of balancing family needs with the demands of an academic career.

The Policy and Recruitment process will address these problems through recruitment of diverse faculty and development of policies that benefit all tenure-track faculty. Although each process in the Action Component contributes to the eight steps of institutional transformation, the Policy and Recruitment process is particularly important for creating visible performance improvements and institutionalizing new approaches to ensure sustainability.

Objectives. The objectives of the Policy and Recruitment process are as follows:

- PR1. propose policies for faculty support and retention;
- PR2. support recruitment efforts; and
- PR3. provide research support.

Structure. Dr. Elizabeth Anthony, an Associate Professor in the Geology Department at UTEP, leads the Policy and Recruitment process. Dr. Anthony has been a leader in faculty governance since 1998, as secretary/treasurer and President of the Faculty Senate. In this role, she has learned the intricacies of policy reform and has formed a strong network of change agents throughout the University. She has also served on the Board (1995-1997) and as an officer (1998-present) of the South-Central Section of the Geological Society of America (GSA), the pre-eminent professional society for geologists in North America. Through GSA, she has developed strong contacts with academics that will serve her well in recruitment. Dr. Anthony will work with the Equal Opportunity and Affirmative Action (EO/AA) officer and interact with departmental change agents. This team will work closely with Faculty Development and Collaborative Leadership to ensure that policies are executed and recruitment is successful.

Our initial planning of the grant has identified the following policies as integral to improved working conditions on campus for all faculty, but in particular women. The aim of these policies is to enhance the tenure-track experience for all junior faculty.

1. Policy for dual-career couple hiring and retention. We have already begun to collect similar policies from other institutions. The Policy and Recruitment team will work with departments involved in the dual-career opportunity and the Provost's office to implement these policies.
2. Family-leave policy. The UT System has a policy on family leave, and the Policy and Recruitment team aims to publicize it, and develop case histories for all faculty to use as examples. The policy will

12:12 PM

9/16/2002

focus on the long-term plans for the faculty member to integrate university life with family needs.

3. A university-wide policy for mentoring of tenure-track faculty. Currently, UTEP implements mentoring differentially among colleges and departments. The Policy and Recruitment and Faculty Development teams will work to create a uniform instrument using UTEP's FMPW as a model.
4. A university-wide policy on third-year tenure reviews. As with the mentoring policy, a third-year tenure review policy is non-uniform within the University. Such a policy will focus junior faculty on preparing a tenure dossier early in their careers and help allay concerns about the tenure process.

The recruitment effort will focus on dissemination of the policies to department search committees as a recruitment tool to bring talented females (particularly minority females) into the applicant pool. The component will work with departmental search committees to identify and recruit female applicants. Funds will be available from the grant for bringing these applicants to campus for interviews and for start-up packages for successful female or dual-career applicants. Research support will also include funds for a fourth-year teaching reduction. These funds will be dispersed on a competitive basis to all faculty, with specific justification for both research and family/personal considerations.

6.2.2 Faculty Development

In the national and UTEP context, the recurring themes of acculturation into the university climate, access to campus information and resources, and meeting the demands of research, teaching, and service are seen as significant barriers to advancement. The Faculty Development process will address these as a way to empower others to take action and generate short-term wins for our faculty.

Objectives. The objectives of the Faculty Development process are to:

- FD1. expand the vision of the existing FMPW to include leadership development and feedback on climate change;
- FD2. develop a model based on our innovative IMPACT Seminars that defines strategies for interweaving research, teaching, and service and promoting leadership;
- FD3. provide a synergy between tenured and tenure-track faculty that benefits the mentors' own professional advancement; and
- FD4. transfer lessons learned from the IMPACT Seminars model to initiate action plans for career advancement of all faculty.

Structure. Dr. Tine Reimers, co-director of the Center for Effective Teaching and Learning (CETaL), will oversee the Faculty Development process. Dr. Reimers is committed to enhance retention of a diverse population at UTEP through the direction of FMPW and her efforts to prepare junior faculty for tenure. The Faculty Development team will work with faculty on career action plans at two different levels. One is to integrate and balance research, teaching, and service. The other is to build leadership through university service and participation in professional organizations.

FMPW, now in its third year, has offered mentoring for new women faculty with the mission to assist with their professional development through the guidance and support of experienced UTEP faculty members, who serve as role models, advisors, and advocates. The program provides the opportunity for mentor and mentee pairs to explore issues and topics of interest through monthly seminars, panel discussions, and roundtables on topics designed to facilitate access to research opportunities, acculturation to the university environment, and discussion of work/life issues. The positive effects of the program are reflected in a statement from one of the participants, "If a university goes to such great lengths to support women faculty, it must be a positive place to grow."

As part of the *Initiative*, the program will be expanded to include leadership development and formal interaction with other Action Components. In addition, lessons learned from the IMPACT Seminars will be applied to this group. Once these women participate in the program, they are poised, as individual leaders, to serve as facilitators and role models for the newly developed campus-wide mentoring efforts.

12:12 PM

9/16/2002

As all newly hired faculty participate in these mentoring activities and, more importantly, as senior faculty learn to improve their mentoring skills, UTEP will set a new standard and develop a state and national model for recruiting and retaining faculty.

Typically new faculty are hired with a wealth of knowledge about their disciplines, but relatively little knowledge how to integrate research, teaching, and service to produce a coherent plan that leads to tenure and promotion. The IMPACT Seminars are designed to increase the effectiveness of participating faculty by developing new ways of integrating teaching, research, and service. It will also build communities of faculty from various ranks who are committed to continual reflection on the relationship among these.

For each year of the grant, twelve participants will be selected, six junior faculty and six senior faculty. The goal of the IMPACT Seminars is to create individual career action plans that integrate research, teaching, and service. Junior and senior faculty will develop their own action plan, creating a synergy that promotes professional advancement for both.

During an intensive one-week, summer seminar, facilitators will ask questions with a view toward maximizing the quality of student learning and enhancing a productive professional career. At the end of this seminar, IMPACT faculty will develop an action plan for the coming year. They may, for instance, include alternative teaching methods or techniques that integrate research in a class they are scheduled to teach during the subsequent year. Another example is the integration of service with teaching and research, such as Dr. Kathleen Staudt's UTEP Institute for Community-Based Teaching and Learning that pairs faculty, students, and community partners. With CETaL support, faculty will design an assessment plan to record the effects of the changes proposed.

Faculty will gather their documentation, prepare a report, and meet regularly with CETaL directors during the fall and spring semesters to discuss the effectiveness of their plans. In the second summer, they will meet as a group to present their reports and codify best practices. In addition, they will be encouraged to disseminate their findings at meetings and through refereed publications.

At the end of the grant period, we anticipate two outcomes that create sustainability. The first is a model for integrating research, teaching, and service that can be used across all colleges. The second is 60 change agents who are prepared to work as leaders, ensuring successful implementation of individual action plans.

6.2.3 Collaborative Leadership

The Collaborative Leadership process will help each department create a vision that directs change within that department, develop strategies for achieving that vision, ensure that the vision is communicated, and empower faculty to act on the vision. The specific barriers that are targeted are leadership, professional advancement, and workplace environment, in particular, marginalization. The involvement of faculty in this process will build a collegial and supportive environment that benefits all faculty.

Objectives. The objectives of the Collaborative Leadership process are to:

- CL1. work with college and departmental change agents to create action plans that remove barriers to recruitment, retention, and advancement of diverse faculty;
- CL2. involve faculty in the assessment of departmental climates and articulation of strategies for improvement;
- CL3. establish ongoing communication processes with departments that reinforce the importance and benefits of the core value of workplace diversity; and
- CL4. identify and share best practices among diversity initiatives and sources of support for them.

Structure. Drs. Ann Gates and Patricia Witherspoon will lead the Collaborative Leadership process. Dr. Gates, Associate Professor and co-chair of the Computer Science Department in the College of Engineering, chairs the President's Advisory Committee on Diversity and serves on the National Academy of Engineering's Engineering Education Committee that provides guidance and advice to policy makers, administrators, employers, and other stakeholders to the engineering education enterprise. Dr.

12:12 PM

9/16/2002

Witherspoon is chair of the Communication Department and Director of the Sam Donaldson Center for Communication Studies; she is a former Associate Dean of Communication at UT-Austin and a former administrator in the Office of Academic Affairs-UT System Administration, where she worked on a variety of issues associated with academic policies and organizational structures. Her teaching and research interests are in the role of communication in organizational leadership and the leadership of organizational change.

This component will involve faculty members as change agents who will work toward building relationships at the departmental level that are based on trust, respect, integrity, risk taking, empowerment, and openness. The Collaborative Leadership process will work initially with departments who share the vision of this proposal and then with departments who come to understand the importance of facilitating diversity. It is our vision that behaviors shown by successful departments will serve as examples to others, with the acknowledgement that each department has a unique culture and that differences must be respected.

The Collaborative Leadership and Evaluation components will work with departments to evaluate organizational climates related to diversity and to develop a checklist of suggested action items. Data will continue to be collected and assessed by Drs. Gates and Witherspoon and the faculty change agents. This group will also analyze the effectiveness of the departmental action plans, suggest appropriate changes where necessary, and identify and utilize Best Practices as described later in this section.

The team will work with participating departments to collect and analyze demographic data, structure focus groups such that faculty can speak openly and honestly without fear of reprisal, and administer diversity self-assessments that examine workforce satisfaction, workplace climate satisfaction, and external awards and recognition for diversity efforts.

Establishing ongoing communication to reinforce the university's vision on diversity and the vision outlined in this proposal will be achieved in a number of ways, including the following:

- interaction with Deans and other administrators at the Institutional Action Board meetings;
- presentations on campus, e.g., the Administrator's Forum and new chairs and departmental orientations;
- sponsorship of faculty forums;
- an ADVANCE webpage on the university's website; and
- publication of articles in *Horizons*, the university's monthly staff/faculty newspaper.

The Collaborative Leadership team will serve as a resource for the department and university. Example activities include:

- Identification and promotion of Best Practices, for example
 - defining diversity as a departmental core value (Collins and Porras, 1994)
 - including criteria in the departmental interview process to guide hiring faculty who share the core values of the department (Collins and Porras, 1994)
 - involving junior women faculty in the IMPACT Seminars and FMPW,
 - empowering change agents who can articulate clearly and consistently their commitment to diversity and demonstrate their commitment through actions
 - discussing the literature on barriers to the advancement of women in academe to dispel myths concerning retention and promotion of women
- Identification and recommendations of diverse faculty for membership in key committees and as candidates for key positions.

6.3 The Institutional Action Board

It is critical to the success of the grant that there be an internal board to act on recommendations and to communicate actions to the higher administration, department chairs, and faculty. The Institutional Action Board will work closely with the external Advisory Board to refine the *Initiative* and to define a plan for

12:12 PM

9/16/2002

sustainability of institutional transformation after the lifetime of the ADVANCE grant.

Objectives. The objectives of the Institutional Action Board are to:

- IA1. initiate policy change;
- IA2. define strategies for change; and
- IA3. oversee all grant initiatives.

Structure. Dr. Evelyn Posey will chair this Board. As Associate Vice President, Dr. Posey provides leadership in faculty development, instructional design, and the use of technology to enhance instruction. She provides oversight for the CETaL where faculty find support for instructional design, development, and evaluation. As founder of the pilot FMPW, Dr. Posey brings personal experience in administration and a firm commitment to diversity to the project. For her work to improve the participation and advancement of women on the UTEP campus, she received the 2000 YWCA Reach Award for Outstanding Achievement in the Business Community and in 2001 was inducted into the El Paso Women's Hall of Fame.

The Board includes the deans of the four participating colleges. They bring expertise and contacts to the Board, e.g., Dean Brady is involved with the Rainbow Coalition and Dean Crespy has experience with a five-year diversity initiative at Miami University. Other members of the Board include the five co-PIs, the EO/AA officer, and faculty change agents, to include at least two department chairs. Selection will be made through both self-nomination and a process that involves the Faculty Senate and department chairs. The Board will meet each semester. The structure of the meetings will be presentation of formal status reports by each of the co-PIs. These reports will include a summary of Best Practices and current impediments to progress, along with specific recommendations for action by the Board.

6.4 Evaluation Component

The multi-faceted Evaluation Component has both formative and summative self- and external-assessment components to maintain a quality improvement feedback loop. A full-time, on-campus evaluator who reports to Dr. Posey will oversee all aspects of assessment of the integrated *Initiative*. The evaluator will design a comprehensive study to track recruitment, retention, advancement, and climate variables disaggregated by gender and ethnicity, comparing each to baseline data collected at the beginning of the grant period. Moreover, the evaluator will gather attitudinal data to ensure triangulation of methods, perspectives, and data sources.

We propose to undergo an informal self-assessment mid-year for each of the five years of the project. The main objective of this assessment is a formative one, i.e., to assess progress of the project and to focus on improvement measures. This informal assessment focuses on action and accountability and will use focus groups separated by gender. The rationale for separate focus groups is based on evidence that each gender will bring different insights to the value of the program. Issues that surface during these sessions would also feed into the assessment tool used at year-end to evaluate overall success of the program.

An assessment survey will be conducted at the end of each year to 1) determine if original project goals are being met; 2) identify gaps between expectations and actual performance; 3) address substantial or unacceptable deviations that surface; and 4) provide feedback to the process for future project modifications, improvements, and enhancements. The main objective of the year-end assessment is a summative one, that is, a focus on outcomes and the extent to which program goals have been met. Outcomes will also be used to identify deviations from the goals and to suggest remedies.

Working with the Evaluation team and integrating input from program participants, the Institutional Action Board will prepare the final project report. There are several tested tools that have been successfully used in similar projects that will serve as a basis for developing our own.

Departmental self-assessments will include both quantitative and qualitative methods of analysis. The

12:12 PM

9/16/2002

broad areas that will be assessed include numbers of new and total faculty from underrepresented populations, numbers of diverse faculty who are promoted, numbers of diverse faculty who are in leadership roles, faculty satisfaction, workplace climate satisfaction, and the degree to which external awards and recognition have been received for diversity efforts.

6.5 Advisory Board

The external Advisory Board is crucial for continuous refinement of the *Initiative*. It fulfills this function by reviewing year-end reports from each component and the Action Board, interviewing faculty and administrators, and evaluating the responsiveness of the administration to the Board's recommendations. It will be invaluable in providing innovative ideas, monitoring our progress and, at the conclusion of the grant, helping us to assess the success of our *Initiative*.

The eight members of the Advisory Board will be representative academic, business, and scientific leaders who have received national recognition for their work in organizational transformation and commitment to diversity. They will conduct regular campus site visits each spring for the five years of the project. The Board will be chaired by a national leader in advancement of women in Science and Engineering.

7 Measures of Success

A summary of the ADVANCE goals, corresponding objectives from each component, and the measures of success are provided next. The evaluation procedures that will be applied are also included.

GOAL 1: Increase the representation of women in academic science and engineering careers.

OBJECTIVES	MEASURE	ASSESSMENT PROCEDURE
PR1, PR2, PR3, FD1, CL1, CL3, IA2	By the end of the grant period, the total number of female faculty will increase by at least 20% in the participating colleges.	To gather the following: data on faculty hires, disaggregated by gender and ethnicity; attitudinal data through focus groups, surveys, and interviews to determine whether faculty accept positions or remain at UTEP based on supportive, family-friendly policies.

GOAL 2: Increase the advancement (retention and promotion) of women in academic science and engineering careers.

OBJECTIVES	MEASURE	ASSESSMENT PROCEDURE
PR1, PR3, FD1, FD2, CL1, IA2	By the end of the grant period, women will receive tenure at the same rate as men.	Gather data on number of men and women receiving tenure by year.
FD1, FD2, FD3, CL1, IA2	By the end of the grant period, women will be promoted to full professor at the same rate as men.	Gather data on number of men and women being promoted to full professor by year.
FD1, FD2, FD3, CL1, IA2	By the end of the grant period, the percentage of women in leadership will increase by 20%.	Gather data on membership of women in leadership.
FD1, FD2, FD3, CL1, IA2	By the end of the grant period, at least 40% of the membership on key university committees will be women	Gather data on membership of key university committees.
FD1, FD2, IA2	By the end of the grant period, all junior women faculty who have been at UTEP at least three years will be active in one or more of their discipline's professional associations.	Gather data on committee membership and other types of faculty involvement in professional associations.

GOAL 3: Apply the *Initiative* to create climate change at UTEP and transfer the *Initiative* for use at other institutions.

OBJECTIVES	MEASURE	ASSESSMENT PROCEDURE
All objectives	By the end of the grant period, the processes that have been put into place at UTEP will have met Goals 1 and 2.	Analyze data associated with the <i>Initiative</i> , including evaluation from the Advisory Board.
CL4, IA3	By the end of the grant period, the processes described in the proposal and best practices will have been published in journals and other publications.	Collect and analyze reports of this <i>Initiative</i> published in journals and other Publications; address Comments from the Peer-review process.
CL1, CL2, CL3, IA1, IA2	By the end of the grant period, 80% of target departments will have indicated improved departmental climates for workforce diversity.	Conduct focus groups comprised of faculty and department chairs; analyze differences from baseline self-assessments; through individual interview gather attitudinal data indicating that departments removed barriers to recruitment retention, and advancement of diverse faculty.
CL1, CL2, CL3, IA1, IA2	By the end of the grant period, 80% of participating departments will have created action plans that target a diverse faculty.	Gather data on number of departments creating action plans.
CL4, IA3	By the end of the grant period, UTEP leaders and faculty in participating departments will have been informed of best practices, initiatives and support.	Review summaries of meetings and forums conducted to inform UTEP leaders and Faculty about the Results of this Initiative; collect data on Website hits.

8 Management Plan and Timelines

The organization and management of the project, a collaborative effort, is described in Section 6. The co-PIs will manage the components of the *Initiative* and will be supported by two coordinators and an evaluator. Dr. Posey will supervise the evaluator and the coordinators. The co-PIs will provide bi-annual reports to the Institutional Action Board. The Institutional Action Board presents an annual report to the Advisory Board.

Table 2: Timeline.

MAJOR ACTIVITIES	Y 1	Y2	Y3	Y4	Y5
Staffing					
Membership					
Action Comp.					
Documentation	*	*	*	*	*
IMPACT					
Preparation					
Assessment					
Adv. Board	*	*	*	*	*
Plan					

12:12 PM

9/16/2002

The timeline and deliverables for the project are presented in Table 2. A description of some of the activities associated with each row of the timeline is as follows:

- Staffing: hire coordinators/evaluator, invite members/identify leader of Advisory Board
- Membership: initiate nomination process for membership in *Initiative* components
- Documentation: document Best Practices and prepare bi-annual reports
- IMPACT: begin IMPACT Seminars, create individual action plans
- Assessment preparation: Develop assessment instruments and departmental self-assessments; develop schedules for assessment
- Assessment: conduct assessment
- Adv. Board: hold meetings
- Plan: Use Y1-Y3 results to develop formal plan for institutionalization

9 Sustainability

UTEP is committed to sustainable improvements to increase the representation and advancement of women in academic science and engineering careers. In the fourth year, the Institutional Action Board will analyze results of years 1-3 and, based on recommendations from the Advisory Board, will begin creating a formal plan for institutionalizing the processes of the *Initiative*.

UTEP has an established history of honoring commitments beyond the lifetime of federal grants. The President and Provost have agreed to provide financial support of the FMPW, IMPACT Seminars, and dual-career hires. They will ensure that institutional policies and processes on dual-career couple hiring, family leave, university-wide mentoring, and third-year tenure review are widely disseminated and enforced. As a result of the success of this project, the university will continue to seek funding and solicit philanthropic support to fund research start-up costs, graduate students, travel, and consultants.

Through the Institutional Action Board, the university will continue to assess the university departmental climates and to share best practices. The remaining two colleges will be invited to participate in all parts of the program to ensure campus-wide dissemination of all ADVANCE initiatives. The Institutional Action Board will have a significant and long-lasting impact on the institution as it continues to work to improve recruitment and retention, refine policy, build leadership capacity, and change departmental climate. We anticipate that the ADVANCE program will feed on its own success and, as a result, send a clear message to UTEP faculty, staff, and students that not only are we committed to a campus climate that values diversity, we are taking action to transform this university. The grass-roots coalition will sustain the *Initiative* and be in place to work on other organizational issues.

10 Dissemination

The five co-PIs commit to producing reports that document the process, lessons learned, and Best Practices. We will submit to academic and professional journals and prepare periodic local, regional, and national press releases to ensure wide dissemination. We will develop a project Web site that will include relevant information on our program from the actual proposal to the final results. This site will serve as a resource for anyone wishing to follow our progress or develop and implement a similar program. Throughout the entire project, we will network with other ADVANCE institutions to establish synergy.

Through the ADVANCE program, UTEP will become a model for the UT System, comprised of nine general academic universities and six health institutions. President Natalicio has agreed to serve in the role of disseminating information from the Institutional Action Board to the Regents and System. Knowing that the problem we address is a national one, we also propose to distribute information widely by participating in national networks already established for this purpose. These include the American Association of University Women (AAUW), the American Association of Higher Education (AAHE), the American Council on Education (ACE), The American Association for the Advancement of Science

12:12 PM

9/16/2002

(AAAS), Association of Women in Science (AWIS), Women in Science and Engineering (WISE), and Women in Engineering Programs and Advocates Network (WEPAN). This comprehensive dissemination plan will allow us to share what we have learned and to learn from others who are pursuing the same goal.

11 Results from Prior NSF Support

Elizabeth Y. Anthony (PI)

- a) NSF INT-0096863, \$28,200, September 2001- August 2003.
- b) Refining geothermal exploration via geochemical modelling of young volcanic centers in the Kenya Rift.
- c) Summary of results: We are working in collaboration with Dr. Peter Omenda, a former student, to model igneous processes for volcanoes in the Kenya Rift. These volcanoes are the heat source for geothermal energy in Kenya, which is an important renewable resource for this impoverished country. A master's candidate, Jesus Velador, and I spent a month field season in July, 2002. He will complete his M.S. in May, 2003. His plan is to continue this project for his Ph.D. and to return to his native Mexico to teach at a University and work on geothermal resource exploitation in Mexico. A Ph.D. candidate, Julie Hamblock, will begin at UTEP on this project after completing her M.S. at the University of Arizona in December, 2002.
- d) Publications:

Omenda, Peter A., Anthony, Elizabeth Y., and Barnes, Calvin G. (In review). Petrogenesis of phonolite and trachyte lavas at Suswa volcano, Kenya Rift. *Journal of Petrology*.

Omenda, Peter A., Anthony, E.Y., and Barnes, C.G. (2001) Petrogenesis of trachyte and phonolite from Suswa volcano, Kenya Rift. *Geol. Soc. Am. annual mtg.* **33**, A333.

Omenda, P.A., Simiyu, S., Anthony, E.Y., Keller, G.R., and Dean, R.L. (2001) Lithospheric structural controls on magma composition: the Kenya Rift. *Eos Trans. AGU, 82(47), Fall Meet. Suppl., Abstract V51C-1017*, F1396.

Velador, Jesus, Omenda, Peter A., and Anthony, Elizabeth Y. (2002) *Eos Trans. AGU, 82(47), Fall Meet. Suppl.*

Ann Q. Gates (PI)

- a) NSF EIA-9522207, \$1,200,000 September 1995- August 2000.
- b) Building Affinity Groups to Enable & Encourage Student Success in Computing
- c) Summary: The goal of the *Affinity Research Group project* was to address retention and participation of traditionally underrepresented groups in the computing areas by defining a framework that involved undergraduate and graduate students in research and outreach programs. The objectives included: to provide an environment that supports persistence; to define activities that develop the student's research, technical, group, and communication skills; to document and disseminate the infrastructure for creating and managing effective research groups that involve students with a wide range of abilities and experiences; and to develop a formative evaluation instrument.
- d) Summary of results: All objectives of the grant were met. The major deliverables were development of the *Affinity Group Handbook* and dissemination of the model through publications, presentations, and workshops. Indicators of success of the model include an increase in student research participation, publications and invited presentations on the model, adoption of the model in other departments and universities, and grant awards. With respect to success in student development and persistence, success indicators are student conference attendance, publications, presentations, outreach involvement, involvement in extra-curricular activities, graduation, continuation to graduate school, awards, and scholarships.
- e) Selected publications, talks, and workshops:

12:12 PM

9/16/2002

Using the Affinity Research Group Model to Involve Undergraduate Students in Computer Science (P. Teller, A. Gates). *Journal of Engineering Education*: 549-555: October 2002

Expanding Participation in the Undergraduate Research Experience Using the Affinity Group Model (A. Gates, P. Teller, A. Bernat, N. Delgado, and C. Kubo Della -Piana). *Journal of Engineering Education*, 88(4): 409-414, October 1999.

Building Affinity Groups to Enable and Encourage Student Success in Computing (A. Gates, N. Delgado, A. Bernat, and S. Cabrera). *Proceedings of Impacting Change Through Collaboration 1997 WEPAN/NAMEPA Conference*, March 1997, pp. 233-238.

Affinity Research Groups: Attracting and Retaining Women in Computing (L. Alvarado and A. Gates). *Proceedings of the 10th Annual International Conference on Women in Higher Education*, January 1997, pp. 5-10.

Affinity Research Groups: A Comprehensive Model for Expanding the Undergraduate Research Experience (A. Q. Gates and C. Della Piana), workshop at Frontiers in Education 2001, Reno NV.

Meeting the Challenge of Expanding Participation in the Undergraduate Research Experience (A.Q. Gates), invited talk at University of Alaska Fairbanks Supercomputing Center, April 1999.

Best Practices: Recruiting and Retaining Faculty and Students from Underrepresented Groups (A.Q. Gates with Leah Jamieson- Purdue, Soheila Bana-University of California at Berkeley, Soha Hassoun- Tufts University, Jane Daniels- Purdue University, and Elaine Finger- George Washington University), Computing Research Association Conference at Snowbird '98, 1998.

Affinity Research Groups: A Model for Retaining Students in the Computing Sciences (A.Q. Gates), invited panel participation on Women and Minorities in Computing at ISECON '98, October 1998.