Teaching-Research-Advancement Network to Secure Female Faculty for Organizational Retention and Management (TRANSFORM)

<u>Project Summary</u>

Gannon University, located in northwest Pennsylvania, founded in 1925 and affiliated with the Roman Catholic Church, is a private, primarily undergraduate institution with approximately 4,200 students (fall 2010). The university offers degrees from the doctoral through to associate. Gannon University is requesting $482,399 over five years to implement an ADVANCE Partnerships for Adaptation, Implementation, and Dissemination (PAID) program, named TRANSFORM, Teaching-Research-Advancement Network to Secure Female Faculty for Organizational Retention and Management. Funding will be used to support three strategies leading to the goal of TRANSFORM: an increase in the recruitment, retention, advancement, and leadership development for STEM female faculty at Gannon. Four objectives have been identified for achieving this goal: 1) recruit and retain female faculty in the STEM disciplines, 2) advance female faculty through the rank and tenure process, 3) prepare female faculty to hold effective leadership positions, and 4) educate dean, department chairs, and faculty leaders about issues affecting female faculty. The strategies are:

Strategy 1: **Dual Career Services:** Objective 1, the recruitment and retention of STEM female faculty members will be achieved through the creation of a Dual Career Services program. The program will establish cooperative agreements with regional universities and industries to create a regional job database for skilled personnel. As a result, trailing partners will have greater opportunities to find suitable employment. The strategy was modeled after numerous ADVANCE projects for dual career offices such as at University of Rhode Island, Grinnell College, and University of Oregon. Strategy 1 was adapted to have tighter, predefined relationships, a consortium, with regional employers to assure sufficient opportunities are announced on a regular basis.

Strategy 2: **Research Initiation Awards:** Objective 2, the advancement of female faculty through the rank and tenure process, will be achieved by establishing research awards for early- or mid-career STEM female faculty to augment research efforts. The strategy draws on the success of ADVANCE programs as at the University of Wisconsin-Madison and the University of Arizona. Strategy 2 was adapted to offer only award funds for research and not to support the travel associated with the results of the research.

Strategy 3: **Leadership Developments**: Objectives 3 and 4, the institutionalization of leadership development for faculty, chairs, and administrators, will be accomplished through the establishment of Leadership Training, a Leadership Forum, and a Regional Leadership Symposium. The strategy is modeled after the efforts of IT-ADVANCE recipients such as University of Michigan Ann Arbor, Virginia Tech, and University of Washington. Strategy 3 was adapted to be a resource for regional leadership development as opposed to providing development to a broader, geographical base.

Data and results from each strategy will be disseminated through a variety of means, including internal reports and public venues such as human resource communications, STEM education conferences, or leadership journals. The disseminations will emphasize the value of the original concepts and the effectiveness of the modifications.

The sustainability of each strategy is planned, beginning with the support of the executive administration of Gannon University. Future funding will materialize through a combination of funds from the university's developing comprehensive campaign, budget commitments through the annual budget review process, and dollars direct from transactions such as the human resources consortium and the Leadership Symposium.

The intellectual merit of TRANSFORM begins with the support of the administration and is realized through the competencies of the co-PIs to understand the nature of the problems associated with female faculty and to address them with successful, adapted strategies to transform the university's culture at three distinct points: at recruitment, during scholarship growth, and as professional horizons expand. The broader impact of TRANSFORM will be felt as the potential of female faculty -- recruited and committed to teaching and research – can be realized. Their professional goals need not be diminished to reflect the intrinsic constraints of their life and career circumstances. Further, TRANSFORM will enhance the future presence of female faculty by enabling the conditions for career satisfaction and growth. Both the Dual Career Services and the Leadership Developments will be available to the entire North West Pennsylvania regional academic and business community.

PROJECT DESCRIPTION

I. INTRODUCTION

Gannon University (Erie, PA) is a private, co-educational Catholic, comprehensive university offering three doctoral, 18 masters, 55 baccalaureate, and eight associate degrees. To teach approximately 4,000 graduate and undergraduate students, the university employs roughly 197 full-time faculty and 144 adjunct faculty. These programs are organized into three colleges: the College of Humanities, Education and Social Sciences; the Morosky College of Health Professions and Sciences; and the College of Engineering and Business.

Dr. Antoine M. Garibaldi is Gannon University's seventh president. Joining the University in 2001, he has been instrumental in fostering several cultural changes at the university. Under the previous administrations, tenure and promotions decisions were based on excellence in teaching and on service to the University, community, and professional organizations. With feedback from the University community and findings from the 2003 Middle States Evaluation, the Institutional Policy Manual (IPM) was revised to clarify rank and promotion criteria.

Included in this culture change was the establishment of a tenure clock for all tenure track faculty members and a stronger focus on scholarship. The Boyer Model of Scholarship was adopted and became an additional guideline for the tenure decision (Boyer, 1990). While research or scholarship had been a component of some faculty members' portfolios, it occupied a small role compared to teaching and advising. However, now rank and tenure decisions have a tri-fold focus: teaching and advising, service, and scholarship.

In 2002 under Dr. Garibaldi's leadership, the Gannon community adopted Strategic Plan I, which focused on the growth and development of the University (Gannon University, 2005). This plan, spanning 2002-2007, set several goals relative to the Faculty, including:

- Continue to attract and retain a diverse faculty and staff who are committed to student participative learning and who will increase students' intellectual abilities, writing, leadership and critical thinking skills, and civic engagement.
- Establish an academic 'venture capital fund' to enhance faculty members' scholarly and creative development.
- Establish a Center for Excellence in Teaching and Learning (CETL) to assist faculty in applying new technologies and pedagogies to the teaching/learning process.

Progress has occurred on some of those goals. CETL was established, funded and recognized as a valued campus resource. CETL was created in October 2004 as a result of a $1.8 million dollar Title III award. After the completion of the award, Gannon has continued to fund CETL and all associated activities. However, University support for the newly emphasized focus on scholarship has been slower to develop. A follow-up strategic plan, Strategic Plan 2007, specifically identified as a university goal the creation of an employment and academic environment that was competitive at hiring and retaining quality faculty members. As stated in Strategic Plan 2007, the university sought to: "Become an employer of choice in the academic community to attract and retain highly qualified, dynamic and innovative faculty and staff" (Gannon University, 2007).

The rank-and-tenure criteria for faculty are: 1) teaching and advising, 2) scholarship, and 3) service. Most faculty members teach 24 credits per academic year and carry significant advising loads. This student-centered environment at Gannon University is attractive to both students and faculty. Additionally, many faculty members assume leadership roles within departments and committees and professional societies, although no formal mechanism currently exists for cultivating leadership skills in faculty.

Although scholarship now has a formal place in the rank and tenure process, obstacles to faculty success in this area include a lack of time and resources to devote to sustainable research. The climate of many departments remains focused on teaching and service, without allowance for the increased emphasis on scholarship. This adversely affects junior faculty, many of whom are now female and mid-career faculty looking to advance. Research and development funds, provided to faculty through an internal grant process, fall significantly short of requests each year. As a result of these obstacles, most full professors at the University are male, having achieved that status before the culture change, see Figure 1, below.

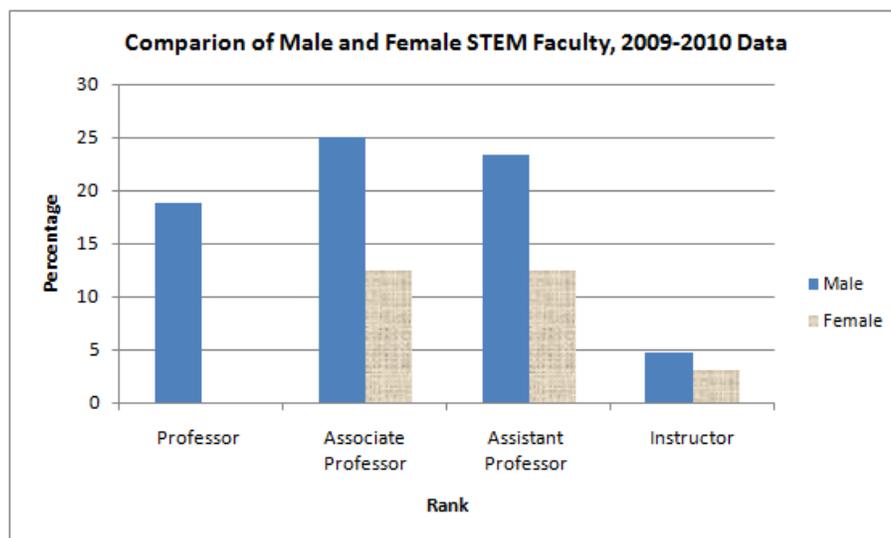## II. FEMALE FACULTY IN STEM AT GANNON UNIVERSITY

In light of these constraints, Gannon STEM faculty sought NSF funding opportunities. After attending an NSF regional workshop, several Gannon faculty members created a focus group that began to identify the needs of the faculty, in particular, the junior, female faculty. This focus group included 13 faculty members, nine of which were from STEM departments. The information gleaned from the focus group and other resources resulted in this ADVANCE proposal (National Academies Press, 2007; Virginia Polytechnic Institute and State University, 2003). The STEM departments participating in Gannon's ADVANCE PAID grant proposal are Biology, Chemistry, Computer and Information Science, Mathematics, Physics, Electrical and Computer Engineering, Environmental Science and Engineering, Mechanical Engineering, and Psychology. Data factors driving the ADVANCE grant proposal follow:

First, female faculty constitute a low percentage of the STEM faculty (28.13%; 18 out of 64) and of the overall faculty (45%; 90 out of 200), (see Table 1).

Table 1: Percentage of Female Faculty in STEM-Related Administrative Units at Gannon University, 2009-2010 Data

Program/Department	Total	Male	Female	% of Female
Bioinformatics Department	1	1	0	0.00%
Biology Department	14	10	4	28.57%
Chemistry Department	8	6	2	25.00%
Computer & Information Science	5	2	3	60.00%
Electrical & Computer Engineering	8	6	2	25.00%
Environmental Science Dept.	3	2	1	33.33%
Mathematics Department	7	5	2	28.57%
Mechanical Engineering	7	6	1	14.29%
Physics Department	3	3	0	0.00%
Software Engineering	2	2	0	0.00%
Psychology Program	6	3	3	50.00%
STEM TOTAL	**64**	**46**	**18**	**28.13%**
UNIVERSITY TOTAL	**200**	**110**	**90**	**45.00%**

Second, female faculty are not advancing through the academic ranks as well as their male counterparts, (see Figure 1).


**Figure 1**: Male and Female STEM Faculty across Rank Levels at Gannon University, 2009-2010 Data

Third, the institutional infrastructure and support needed to attain the newly emphasized scholarship requirement of the rank and tenure process is insufficient, (see Table 2, Figure 2, and Figure 3, below, for data supporting this). Support is needed for new faculty who find it necessary to adjust their research to be more compatible with the constraints of a primarily undergraduate institution or for those who have taken time away from research for family responsibilities.

Table 2: Comparison of Institutional Financial Support, Requested and Awarded, for Faculty Development and for Faculty Research, 2001-2010 Data

Academic Year	Faculty Development Grants		Faculty Research Grants	
	Amount Requested ($)	Amount Awarded ($)	Amount Requested ($)	Amount Awarded ($)
2001-2002	34,946	22,265	29,135	21,831
2002-2003	50,200	27,660	47,992	21,707
2003-2004	51,047	35,642	41,044	21,484
2004-2005	49,525	39,224	39,347	19,525
2005-2006	66,613	51,481	17,973	19,700
2006-2007	83,455	61,845	53,919	20,328
2007-2008	80,481	61,220	31,518	14,950
2008-2009	83,271	66,106	73,889	25,440
2009-2010	97,888	60,132	90,640	19,525
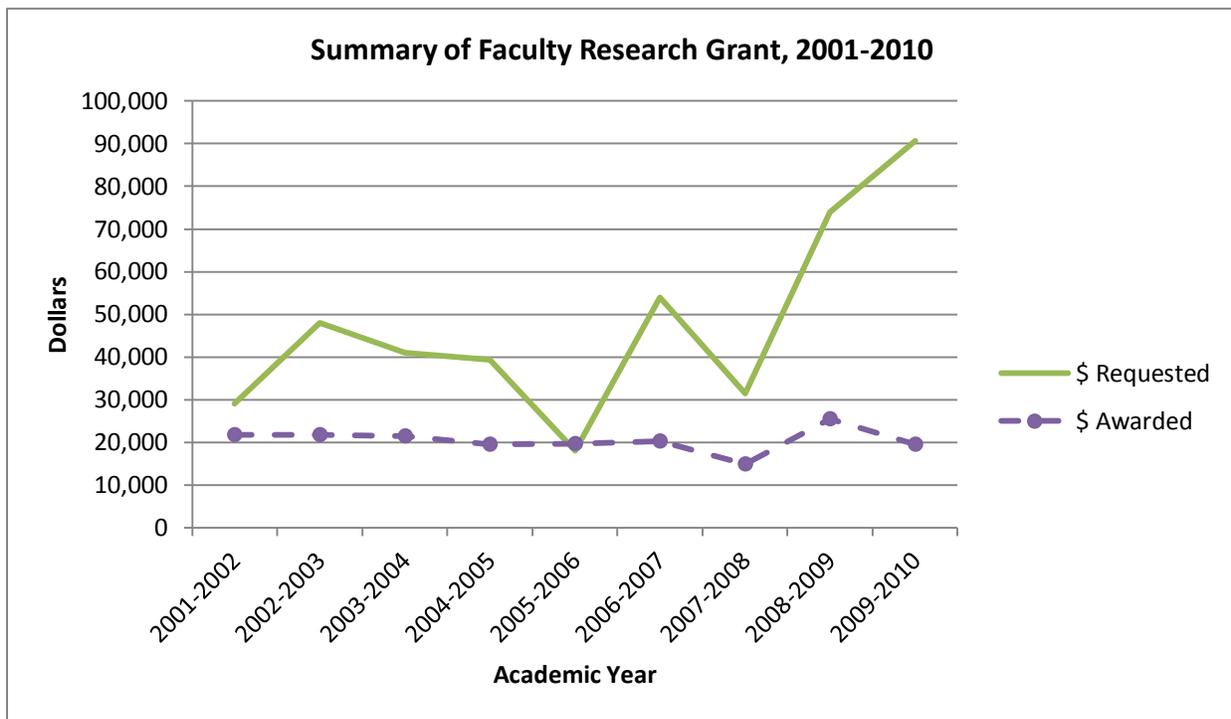
Figure 2: Illustration of Institutional Financial Support, Requested versus Awarded, for Faculty Research Grants, 2001-2010 Data
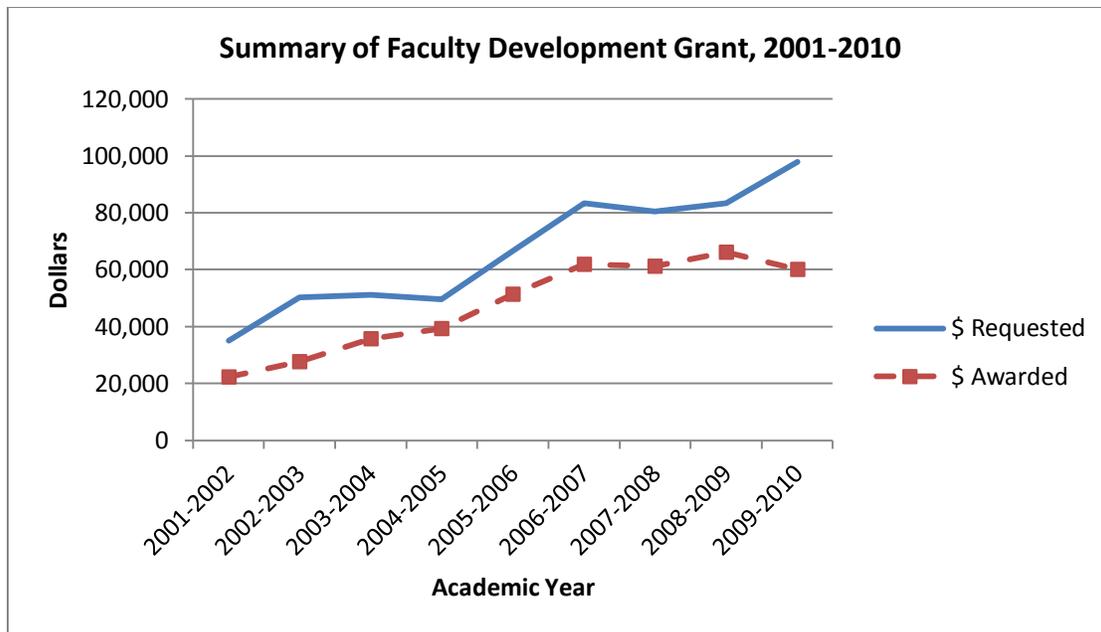
Figure 3: Illustration of Institutional Financial Support, Requested versus Awarded, for Faculty Development Grants, 2001-2010 Data

<u>Fourth</u>, opportunities are lacking for the development of leadership skills needed for the additional responsibilities of management at the University or within professional societies. Institutional-wide initiatives at Gannon University designed to address issues specific to female faculty have not been addressed.

Certain practices enhancing opportunities for promotion and tenure among all faculty have persisted. These include the new faculty mentoring program, faculty development awards, faculty research awards, a faculty development grant in Instructional Innovation with Technology, teaching and learning technology workshops, advising workshops, rank and tenure workshops, annual performance review, and the adoption of the Boyer model of scholarship.

With respect to recruiting female faculty members, Gannon includes this diversity-inclusive statement on all open positions: "Gannon University is an Equal Opportunity Employer and invites female and members of underrepresented groups to apply." Current efforts to address diversity in recruitment include posting open positions on web sites targeting female and minorities. In addition, a representative from Human Resources meets with the chair of each search committee to review the published staffing guidelines, addressing issues of diversity and affirmative action.

Within this institutional environment, the context of an NSF ADVANCE grant corresponds to the retention and advancement goals at Gannon. Selected members of the focus group identified successful and sustainable approaches of previously funded ADVANCE grants (see individual strategies below for specific examples of successful programs). Additional input, including discussions with ADVANCE Program Officers and Project Director of ADVANCE at Virginia Tech, has been crucial to refining the strategies of the TRANSFORM proposal.

III. GOAL, VISION AND OBJECTIVES

The goal of the TRANSFORM proposal is to increase the recruitment, retention, advancement, and leadership development of female faculty at Gannon. The vision is to have Gannon University be regionally recognized as an institution supporting and developing female faculty throughout their careers. The goal of the TRANSFORM proposal will be realized by pursuing four objectives: 1) recruit and retain female faculty in the STEM disciplines, 2) advance female faculty through the rank and tenure process, 3) prepare female faculty to hold effective leadership positions, and 4) educate deans, department chairs,

and faculty leaders about issues affecting female faculty. To achieve these objectives, three strategies will be implemented.

Strategy 1: **Dual Career Services:** Objective 1, the recruitment and retention of STEM female faculty members at Gannon University, will be achieved through the creation of a Dual Career Services program. This will establish cooperative agreements with regional universities and industries to create a regional job database for skilled personnel. As a result, trailing partners will have greater opportunities to find suitable employment.

Strategy 2: **Research Initiation Awards:** Objective 2, the advancement of female faculty through the rank and tenure process, will be achieved be establishing research awards for early- or mid-career STEM female faculty to augment research efforts.

Strategy 3: **Leadership Developments:** Objectives 3 and 4, the institutionalization of leadership development for faculty, chairs, and administrators, will be accomplished through the establishment of Leadership Training, a Leadership Forum, and a Regional Leadership Symposium.

IV. DESCRIPTION OF ACTIVITIES
Strategy 1: Dual Career Services

Anecdotal evidence from the focus group revealed that several STEM female faculty left Gannon University before rank or tenure decisions due to the inability of their partner to find employment within Northwest PA. The Dual Career Services strategy seeks to remedy this situation. The strategy is modeled after successful dual career offices implemented through ADVANCE grants at the University of Rhode Island (2007; Silver, 2006), Grinnell College (2004), University of Washington (2006), University of Michigan (2010), and the University of Oregon (2010) (Higginbotham, 2010; Jaschik, 2010).

A dual-career services office at Gannon will address the recruitment and retention objective by identifying regional employment opportunities for trailing partners of prospective and employed faculty. This effect will be accomplished by creating a cohesive process for sharing information from major, regional employers in business and higher education.

Activity 1: Create the Dual Career Services Office at Gannon University

A local human resource (HR) consultant service will be hired to work with Gannon University's Human Resource Director to formalize the Dual Career Consortium of Northwestern Pennsylvania, DCCNP. The DCCNP's mission will be to enhance the presence of female faculty in STEM disciplines and to help to recruit and retain scientific, medical, and business professionals in the region, especially at member entities, by assisting the partner (hereinafter referred to as a "consortium applicant") of a faculty applicant with his or her job search.

Gannon University's Director of Human Resources will serve as the first chair of the consortium. The protocols, procedures, and forms necessary to register users of the dual-career office will be developed by the consultant. HR directors of institutions of higher education and businesses within a 60 mile radius will be invited to appoint a DCCNP liaison to serve as a consortium member. The consultant will use input from the founding liaisons to establish operational guidelines and assure the ongoing viability of the DCCNP. The consortium liaisons will meet quarterly.

Each liaison will be responsible for shepherding the application of any consortium applicant for employment opportunities at his/her respective institution and to assure consortium applicants are fully aware of all career opportunities at the DCCNP member institutions.

Activity 2: Create and manage a DCCNP website

Integral to the coordination among the member institution is the development of a consortium website. A local website development firm will be hired for the creation of a dual career website and the development of databases of available positions and of skilled personnel. The website would include the links to Gannon University job openings, as well as links to other universities' and companies' job postings. The site will be set up to collect data, such as the number of consortium applicants, the number of jobs posted and filled, and the length of time the consortium applicants used the site.

The HR offices of the local educational institutions and businesses will enroll consortium applicants in the DCCNP and give them access to the website. Members will list professional opportunities and liaison information through the processes incorporated in the website. In effect, the website will function as a password-protected, regional job board with the additional resource of an institutional liaison

Activity 3: Implement the Dual Career Program

After the establishment of the DCCNP, the role of the HR consultant service will be minimized. As the host institution of the DCCNP, Gannon University will institute a Dual Career Program to provide administrative support assuring the consortium's operational needs are professionally managed. The program's activities will include monthly updates to the consortium website, tracking and reporting utilization data, scheduling quarterly meetings for member institutions. Administrative support will be provided by a part-time secretary. After year 2 of the ADVANCE grant, the DCCNP chair will rotate among consortium members.

The part-time webmaster will continue to enable consortium applicant and institution enrollment, manage the job and applicant databases, prepare surveys, and gather website usage data. The webmaster and Gannon's HR director will continue to develop relationships with companies and universities who will utilize the site.

The Dual Career Services strategy builds on the employment practices at Gannon, namely encouragement of female applicants, informal networking among academic departments and professionals of the region, and on-going, collaborative connections with local human resources departments.

Strategy 2: Research Initiation Award for Early-Career Faculty or for Mid-Career Faculty
Activity 1: Research Initiation Award

The activities of the Research Initiation Award (RIA) strategy will help to realize the second objective of the grant which is to increase the number of Gannon female faculty achieving advancement in rank. The research initiation award will provide resources for early- or mid- career, female STEM faculty as they pursue research initiatives that are likely to support promotion. The strategy will potentially lead participants to gather enough initial project data to compete for external funding from another source or to produce other scholarship artifacts.   The strategy draws on the success of ADVANCE programs at the University of Wisconsin, Madison (Pribbenow & Benting, 2004); the University of Washington (Lange, et.al., 2003); and the University of Arizona (Estes, 2008). Both monetary funds and release time for research will be provided in this strategy. Similar teaching loads are address by providing release time for research with an ADVANCE grant at the University of Puerto Rico at Humacao (Ramos & Benitez, 2007).

First, the strategy committee will solicit and review proposals from the qualified candidate pool, selecting one faculty member annually for the award. The applicants must be tenure-track/ tenured, assistant or associate female faculty from a STEM discipline. Applicants must provide a narrative about the scope of the research, anticipated results, dissemination prospects, and a plan for using the results to obtain additional, external funding. The maximum amount of the award is $10,000 for a two-year period.
 In addition, the faculty member will be awarded three credits of release time per semester during the two-year period. The award may be used to cover capital equipment, support for a graduate research assistant during any time of the award period, undergraduate student summer pay, research expendables, and other justifiable project-related expenses. The recipient of the award will provide progress reports at the end of her first and second year and a final report during the fifth year of the ADVANCE PAID period. The procedure will be repeated each year of the ADVANCE grant beginning with the second year of the PAID period.

Strategy 3: Leadership Developments

The activities of the Leadership Developments strategy will address Objectives 3 and 4 of this proposal. The strategy will increase the number of continuing education opportunities for female faculty in the areas of leadership, and will educate administrators on the issues affecting success of STEM female faculty. Through the skill sets acquired female faculty will be prepared to pursue and/or serve in leadership positions within and outside the university.

The strategy is modeled after the efforts of the following NSF IT-ADVANCE recipients: University of Wisconsin-Madison (2009), University of Washington (2007, 2009), Virginia Tech (2003), and University of Michigan (2010). The collaboration of the University of Michigan and Wayne State University (2007) has being reviewed are strategies were selected for implementation.

The Leadership Developments strategy will address the need to formalize and institutionalize the constructs, paradigms, procedures, and responsibilities of leaders. With the training, individuals can rise

confidently to leadership positions in academia, professions, and community arenas. Three aspects contribute to the needs for leadership training. First, currently, no institutionalized curriculum or program prepares faculty for leadership positions such as department chairs, program directors, deans, or committee chairs. Faculty rise to leadership positions without any formal training. Lack of training and experience diminishes the effectiveness and slows the advancement of faculty in these leadership roles. Second, faculty members are expected to perform service for advancement in rank and tenure. Leadership training opportunities would support achievement of this requirement, providing professional development. Last, two-thirds of Gannon's STEM existing chairs are male faculty overseeing and mentoring female faculty. The chairs lack models for mentoring faculty, in general; male faculty – specifically in STEM fields -- lack models for mentoring female faculty.

Activity 1: Provide a curriculum of Leadership Development Training
A leadership curriculum will be defined as a combination of professional development seminars, webinars, invited speakers, and panels organized in three main categories: Leadership and Vision, Task, and Interpersonal Relationships and Communication. Each academic year, six, one-hour-long events (topics will be drawn equally from each category, see Table 3 below) will be available to the faculty. The curriculum will provide faculty with opportunities to build the necessary skills to be successful in leadership positions within and outside the University. The topics selected for the curriculum will be discussed with a focus on gender issues.

Table 3: Potential Sessions for Leadership Development Training

Leadership and Vision Topics	Task Topics	Interpersonal Relationships and Communication Topics
Contemporary approaches to leadership development	Delegating authority	Conflict management
Leadership self-assessment	Problem-solving and decision-making	Work/life balance
Ethics and character	Goal setting	Mentoring faculty
Values and vision	Stress management	Motivation faculty

The Center for Excellence in Teaching and Learning (CETL) will play a major role in the implementation and continuous evaluation of the training sessions. With input from the Strategy Team and through the structure of CETL, the training will be developed, institutionalized, and sustained. The sessions will be included in the regularly-offered events, thus enabling more effective leaders throughout the University. In addition, the *Leadership Development Training* sessions will fulfill a portion of faculty requirements for professional development in the rank and tenure process.
The curriculum will be evaluated yearly by the Steering Committee and will be revised based on the faculty needs. The deans and the chairs will play a major role in the effectiveness of these seminars by advertising and promoting these events to all members of the Gannon community. A certificate of completion will be awarded to faculty who complete three topics per category (nine hours of training). Faculty who attend four sessions during an academic year will be eligible to receive one of the two, fully-funded awards to attend The Council of Independent Colleges (CIC) Conference.

Activity 2: Establish leadership workshops as "Leaders Forum for Climate Change"
"Leaders Forum for Climate Change" (The "Forum") will focus on establishing three, half-day leadership workshops. Workshop participants will develop plans for improving the climate for female faculty, for supporting current faculty female in career advancement, and for hiring and retaining more female faculty members (Quinn, et al. 2007; Yen et al., 2004). The strategy team will identify topics appropriate for the environment at Gannon University based on input from faculty and published data in the literature. Consequently, the activities of the workshops will produce an understanding of the barriers to be addressed and how to address them in academia.
The workshops will provide department chairs, program directors, deans, associate deans, provost, associate provost, administrators, and faculty members with a solid understanding of the structure, psychology, and behavioral barriers existing for female faculty. Training of current leaders will
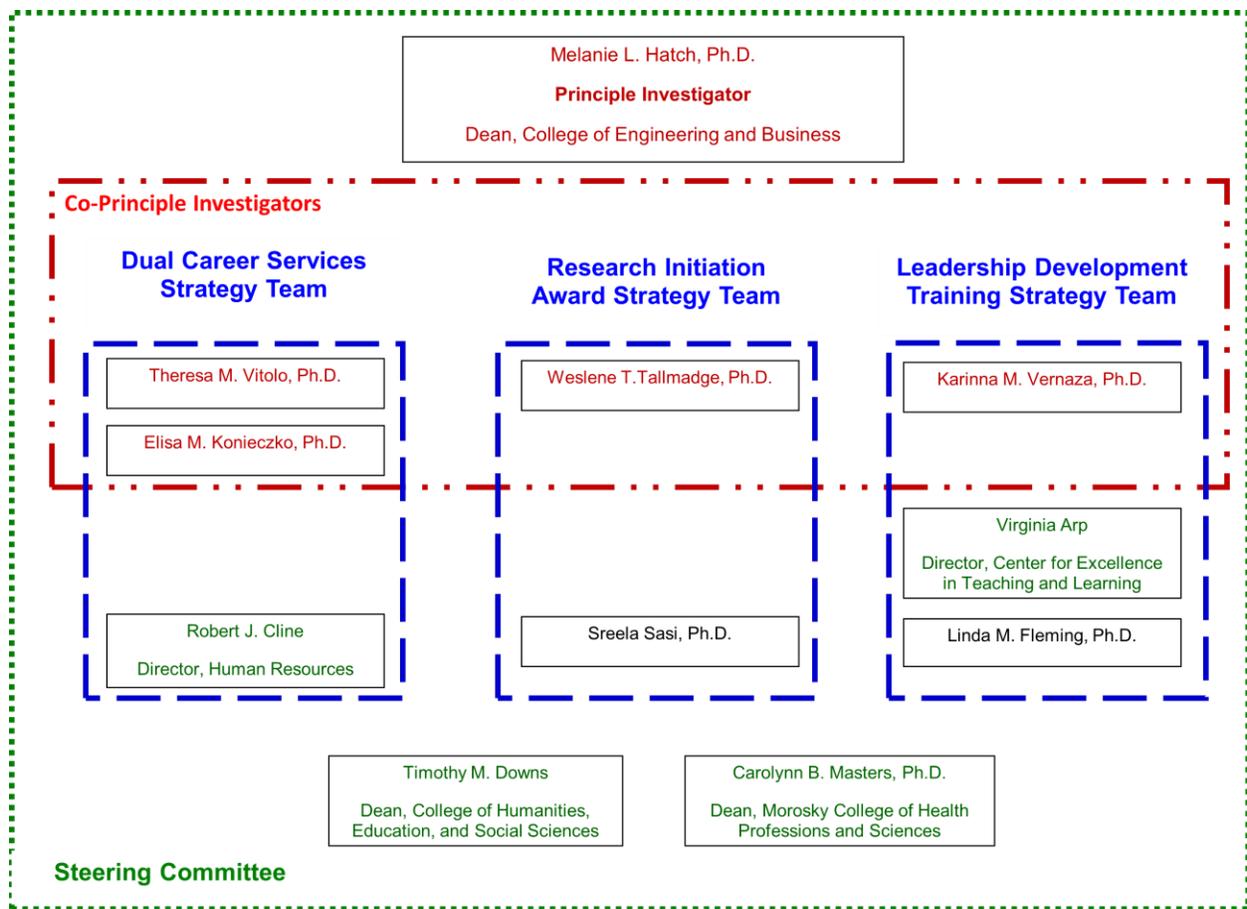
foster an awareness of the challenges facing female faculty and how the academic cultures in STEM fields impact female faculty. This climate change is needed to sustain the strategies implemented through the grant.

Activity 3: Conduct an annual Regional Leadership Symposium

Annually, Gannon University will conduct a Regional Leadership Symposium. The event will be open to the Gannon Community and to regional institutions. The keynote speaker will address key issues facing leaders in higher education with an invited guest. The invited guest will be coordinated in conjunction with the Leadership Development Training sessions. The Symposium will focus on professional leadership topics valued by any organization, in higher education or the community, looking to develop effective managers.

V. ADMINSTRATIVE STRUCTURE

Figure 4, below, shows the connections of the administrative structure. All levels of grant management will be linked with the principle investigator, Dr. Melanie Hatch, Dean of the College of Engineering and Business (CEB).

Melanie L. Hatch, Ph.D.
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Steering Committee

Figure 4: Administrative Structure

Steering Committee: The overall direction of the project will be provided by the TRANSFORM Steering Committee. This committee, chaired by the PI, includes the Co-PIs, the Deans of the other two colleges, the Director of the Center for Excellence in Teaching and Learning, and the Director of Human Resources. This committee will meet bi-monthly to facilitate the implementation of the grant. The Strategy Teams will report progress to the members of the Steering Committee.

Principle Investigator (PI), Staff: The PI will be Dr. Melanie Hatch. The implementation of the ADVANCE Grant will be incorporated into the dean's on-going responsibilities. The PI will chair the Steering Committee and the Strategy Teams. The PI will regularly update the University department chairs on the TRANSFORM events as well as seek their feedback. The CEB Dean's Administrative Assistant position will allocate 10% of her time to the managerial requirements of the grant.

Strategy Team: Each one of the three strategies will be implemented by specific Co-PIs and University personnel. Dr. Elisa Konieczko (Co-PI, Biology Department) and Dr. Theresa Vitolo (Co-PI, Computer and Information Science Department) will oversee Strategy 1; Dr. Weslene Tallmadge (Co-PI, Chemistry Department) and Dr. Sreela Sasi (Senior Personnel, Computer and Information Science) will oversee Strategy 2; and Dr. Karinna Vernaza (Co-PI, Mechanical Engineering Department), Dr. Linda Fleming, (Senior Personnel, Psychology) and Ms. Virginia Arp (Senior Personnel, Director of CETL) will oversee Strategy 3. The Strategy Teams report to the members of the Steering Committee so that strategies' repercussions and funding can be adequately communicated. The Strategy Teams will meet at least every month or more frequently depending on the needs of the activity.

VI. INTELLECTUAL MERIT

The intellectual merit of the TRANSFORM project lies in the collective value of each of the strategies. The Dual Career Services strategy provides opportunities to attract and retain female faculty members at Gannon University. Exit interviews from female faculty leaving Gannon University within the past 10 years document the problem of partners not being able to secure full-time employment in their career area within the region. The strategy, while not a promise of employment, will help trailing partners within the region identify job opportunities more directly, and thus increase the likelihood of securing employment. Faculty whose family situation is stable tend to remain at an institution and achieve promotions in rank and tenure.

With executive and administrative support of the strategy and the support of regional employment collaborators, implementation is assured. Institutionalizing the processes into a publicized and accessible service directly documents the commitment of Gannon to supporting individuals' career goals to their fullest potential.

The merit of the Research Initiation Award strategy lies in its transformative capabilities on the research culture at Gannon. The Research Initiation Grant strategy may advance the process of shifting the balance of expectation from "teaching only" to "teaching and research". Additionally, the implementation of the strategy will afford the opportunity to examine if similar strategies successful at large, research universities designed to improve the involvement and success of female faculty can also work at smaller, primarily undergraduate institutions with a history of high teaching loads and less research. Furthermore, increased scholarship activity may positively impact teaching, involve undergraduates in research, and lead to positive impact on the field of the research through collaborations, presentations and papers.

As with the Research Initiation Award strategy, the Leadership Development Training strategy offers vehicles for organizational transformation. Building an understanding and ownership for advancement of faculty members among current and emerging leaders at the university, the Leadership Development Training strategy provides opportunities for faculty and administrators to develop their leadership skills. With the five-year projected timeline, a pipeline of emerging leaders can infuse new paradigms and perspectives into the University.

The TRANSFORM strategies can be supported by on-going and reliable services of the university. The ultimate transformative potential of the strategies has been acknowledged by President of the university and has his full support. The female faculty can benefit by these strategies so that their professional, research, and managerial potential can be realized.

VII. BROADER IMPACT

At most academic institutions females are underrepresented in STEM disciplines (Stewart, 2007). Such is also the case at Gannon. This grant seeks to increase the number of females in STEM at all academic levels. There are five colleges and universities and one medical school within 45 miles of Gannon University in Erie; many other educational institutions are located with a 60 mile radius. A dual career office does not currently exist at any of the Erie area institutions. The formation of a formal partnership among human resource executives will promote the sharing of resources and provide

opportunities for the dissemination of results. Enacting this strategy at Gannon University would not only help Gannon retain faculty members, it will also serve as a resource for faculty members at the other area institutions. This strategy should help female faculty to maintain career efforts without needing to be displaced to support the career of a spouse/partner. Moreover, this strategy could also serve local area hospitals and businesses in their recruitment and retention of physicians and other health care professionals, engineers, scientists, and other professionals whose partner would also be looking for professional employment within the region.

The Research Initiation Award will afford the opportunity to determine if strategies that have been successful at large, research universities to increase the success of female faculty also work at a smaller, primarily undergraduate institution with a history of high teaching loads and less research. Improving the scholarship portfolios of female faculty will increase the number of female faculty at senior level ranks. Additionally, the science faculty at Gannon typically involves undergraduates in research while the engineering faculty involves both undergraduate and graduate students. Research results will potentially result in conference presentations, papers published, and external funding opportunities.

The strategy of creating both the *Leadership Development and Leadership Symposium* will result in a stronger internal network, an understanding of barriers to be addressed, and a model of best practices for leadership development which could be replicated at other institutions. Therefore, the strategy will help to retain the highest-qualified faculty members by guiding, understanding, and assisting them through the advancement process, and promote effective female leaders throughout professional groups and community sites. Additionally, other institutions will be invited to participate in the regional symposium, thus, broadening the impact of the leadership activities.

Data and results from each strategy will be disseminated through a variety of means, including internal reports and public venues such as human resource communications, STEM education conferences, or leadership journals.

VIII. SUSTAINABILITY

Gannon University is committed to the sustainability of these efforts to enhance the number of female faculty recruited and retained, achieving advancement in rank and effectively earning leadership positions at the University and in the community. In accordance with the model outlined by Litzler,et al. (2007), the following approaches will be used to sustain and support these strategies following the completion of the ADVANCE grant.

Strategy 1: The Dual Career Services. To sustain this strategy, the PI and Co-PIs will submit a unit plan to the administration of Gannon University. This plan will use the data gathered from the first two years of the ADVANCE grant, and will request funds to be allocated annually from the University budget to support:
1. A part-time secretary, who will support the Chair of the DCCNP Committee and gather / record data from use of the Dual Career website, and
2. A part-time webmaster, who will continue to update the website weekly with job-related information, as well as maintain and modify the website as needed.

Additional financial support for the Dual Career website / strategy will come from the fees charged by the DCCNP.

Strategy 2: The Research Initiation Award. The RIA will be sustained after the ADVANCE grant period by a two-fold approach:
1. Using data gathered from the recipients of the ADVANCE research award, the investigators will present a unit plan to request permanent funds from the University's budget for one Research Initiation Award to be given annually to a female STEM faculty member.
2. The University will include an option for donors to contribute to the research efforts of female faculty in the upcoming capital campaign.

Strategy 3: The Leadership Development. Gannon University will sustain the Leadership Development Strategy in the following ways.
1. Faculty in the Organizational Management and Leadership Ph.D. program at Gannon University will provide service to the University, a requirement for rank and tenure, by giving seminars to department chairs and program directors. They may also serve as speakers for the Regional

Leadership Symposium. CETL will ask the speakers for permission to record their talks for future use.

2. Similar to the other two strategies, a unit plan will be submitted to the University requesting funds to permanently support external speakers and the annual Regional Leadership Symposium.

3. After the grant period is over, a nominal fee will be charged to participants of the Symposium which will cover a portion of the expenses.

IX. ASSESSMENT AND EVALUATION STRUCTURE
Both an internal and external evaluation components will be included.

External Evaluation: Two external evaluations will be performed during the five-year period of the grant. The first evaluation will take place during the end of the second year. At this point, the implementation should be in progress and preliminary results should be available. The second evaluation will take place during the last year of the grant. Dr. Edith Gallagher has agreed to serve as an external evaluator. Dr. Gallagher is a Research Associate in the Biology Department at Franklin and Marshall College and recipient of a NSF-ADVANCE Fellows award in 2004.

Internal Evaluation: Each strategy team will conduct formative evaluations, striving for continuous improvement of the grant's activities, throughout the five-year period of the grant. Tables 5-7 indicate the data elements that will be collected to evaluate the strategies' activities. A balanced scorecard approach will be employed to determine the overall success of the TRANSFORM program (Kaplan & Norton, 1996). Performance measures for each of the four program objectives have been identified and will be collected. See Table 8, below, for details of balanced scorecard approach measures.

In addition to the strategy team's formative evaluation, Dr. Constantine Kliorys, Senior Fulbright Scholar in Mathematics and Professor in the School of Business with background on algebraic number theory, has agreed to serve as an internal evaluator. The strategy teams will provide Dr. Kliorys with the data from the formative evaluations yearly. He will analyze and correlate this data to the grant's objectives, and make recommendations to the Steering Committee. Dr. Kliorys will provide a copy of his yearly report to the external evaluator, and serve as a liaison during the two visits of the external evaluator.

X. TIMELINE AND DELIVERABLES
Table 4 presents the projected timeline for the implementation of the three strategies as well as the deliverables during the five years of NSF support. The shaded areas indicate the in-progress activities.

Table 4: Timeline for Implementation of Grant Activities

Timeline and Deliverables	Year 1	Year 2	Year 3	Year 4	Year 5
Dual Career					
Create Consortium	▓				
Create Webpage	▓				
Maintain Webpage		▓	▓	▓	▓
Maintain Dual Career Program		▓	▓	▓	▓
Research Grants					
Create Grant Committee to review applications	▓				
Disseminate funds		▓	▓	▓	▓
Award funds for faculty research projects		▓	▓	▓	▓
Monitor progress of faculty research projects		▓	▓	▓	▓
Leadership Training					
Create curriculum for workshops, forum	▓	▓	▓	▓	▓
Establish a topic each year for the Regional Leadership Symposium	▓	▓	▓	▓	▓
Identify guest speakers for each event	▓	▓	▓	▓	▓
Assess the outcomes from each series of events	▓	▓	▓	▓	▓

Table 5: Data Collection Plan for Evaluation of Strategy 1, Dual Career Services

Activities	Data Element	Analysis
Create the Dual Career Office at Gannon University in conjunction with a Dual Career Consortium of Northwestern Pennsylvania (DCCNP)	• Number of organizations contacted to use website to advertise professional openings	To determine the breadth of exposure for applicants
Create and manage a DCCNP website	• Number of people registering for the service • Number of people who find jobs using this service • Number of companies who utilize site for employment announcements • Number of positions listed • Number of registered people who use the service • Number of faculty who are retained by the university because spouse/partner found employment	To determine the effectiveness of the website in helping trailing spouses/partners obtain employment in the regional area
Implementation of the Dual Career Program	• Number of faculty who are retained by the university because spouse/partner found employment	To improve the portfolios of the registered users and increase the likelihood of their obtaining regional employment

Table 6: Data Collection Plan for Evaluation of Strategy 2, Research Initiation Award

Activities	Data Element	Analysis
Provide funds and release time for early and mid career female faculty to pursue research initiatives	• Number of conference presentations • Number of external grant proposals submitted • Number of papers accepted • Number of research collaborations established	To assess the effectiveness of the funds and release time for successful pursuit of research initiatives

Table 7: Data Collection Plan for Evaluation of Strategy 3, Leadership Developments

Activities	Data Element	Analysis
Provide a curriculum of Leadership Development Training	• Number of faculty attending each leadership training sessions • Number of faculty completing the certificate of training • Number of females in leadership roles • Participant survey from each event	To determine the effectiveness of the leadership development training including topic offerings, identify shortcomings, and implement improvements
Establish leadership workshops as "Leaders Forum for Climate Change"	• Number of leaders attending each event • Number of sessions offered every year • Number of sessions on leadership (i.e. topics) • Survey from each event	To determine the effectiveness of the leadership development training including topic offerings, identify shortcomings, and implement improvements
Conduct an annual Leadership Regional Leadership Symposium	• Number of leaders attending each event • Number of sessions on leadership (i.e. topics) • Survey from each event	To determine the effectiveness of the leadership development training including topic offerings, identify shortcomings, and implement improvements

Table 8: Balanced Scorecard Dashboard **(**Every year the following measures will be assessed and analyzed to evaluate the overall success of the program).

Goal	Strategy	Measurement	Target
Learning & Growth Perspective			
Objective 1: Recruit and retain highly qualified female faculty in the STEM Programs	Dual Career Services	Increase the retention percentage for female faculty in STEM programs	Increase by 10%
		Increase the number of female faculty that advance through to professor	Increase by 10%
Internal Perspective			
Objective 2: Increase the number of female faculty that obtain Associate Professor and Professor positions through the rank and tenure process	Research Grant	Increase the number of female faculty performing scholarly activities	Increase by 10%
Objective 4: Increase awareness of issues affecting female faculty by educating deans, department chairs, and faculty leaders	Leadership Training	Increase the number of chairs, deans and administrators who attend leadership trainings	Determine and exceed the baseline
External Perspective			
Objective 3: Increase the number of female faculty who are in leadership roles, such as department chairs, program directors, deans, and community leaders	Leadership Training	Increase the number of female faculty who attend events to prepare them for leadership roles Increase the number of female department chairs and administrators	Determine and exceed the baseline

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