Teaching-Research-Advancement Network to Secure Female Faculty for Organizational Retention and Management: Assessment of Grant Activities After Five Years (2011- 2016)

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Abstract

Gannon University's National Science Foundation ADVANCE-PAID award is in its final year. Award initiatives aimed to improve the life of female STEM faculty at a primarily undergraduate institution (PUI) by adapting successful strategies from research universities: (1) Dual Career Services; (2) Research Initiation Awards; and (3) Leadership Development. Strategy 1 created a website, careersfor2.com, to connect regional universities, industry, and institutions with accompanying partners of job candidates. To date, 287 jobs from 415 employers were advertised on this site. This strategy will be sustained through participation in a regional Higher Education Recruitment Consortium. Strategy 2 provided teaching release time and/or a research stipend to six junior female faculty. Preliminary results reveal an increase in the scholarly productivity of the first two awardees. This strategy will be continued through a university-wide, competitive release time program. Strategy 3 offered training on leadership topics. In total, 30 leadership workshops, 3 regional conferences, and 10 chair trainings were offered. Reactions to the workshops were positive and attendance increased yearly. The university will continue to offer the workshops after the grant ends. Each strategy had challenges and successes, providing insight into the feasibility of converting research institution techniques into the structure of a PUI.

Introduction

The goal of TRANSFORM is to increase the recruitment, retention, advancement, and leadership development of female faculty at Gannon University.

The grant is operationalized through three strategies:

(1) **Dual Career Services**: Goal is to provide greater employment opportunities to accompanying partners; therefore, addresses recruitment and retention.

(2) **Research Initiation Awards**: Goal is to provide resources for early- or mid- career female STEM faculty to support advancement in rank.

(3) **Leadership Development Seminars and Workshops**: Goal is to increase the number of continuing education opportunities in the areas of leadership and to educate administrators on the issues affecting the success of STEM female faculty.

Evaluation: Dr. Edith Gallagher, Franklin and Marshall College, performed the final evaluation during her visit on May 16-18, 2016. The informal debriefing was extremely positive. She indicated that the progress towards achieving the objectives has been impressive and that the sustainability plans were sound.

State of Female Faculty in STEM at Gannon University

First, female faculty constitute a third of the STEM faculty. The percentage has increased slightly.

Year	Total	Women	% of Women
2009-2010	64	18	28.13
2010-2011	66	22	33.33
2011-2012	65	21	32.31
2012-2013	70	24	34.29
2013-2014	72	26	36.11
2014-2015	73	24	32.88
2015-2016	79	29	36.71

Second, STEM female faculty do not have a strong presence at higher ranks. *(Instructor-rank not included.)*

Year	Professor		Associate		Assistant	
	Male	Female	Male	Female	Male	Female
2009-2010	18.8%	**0.0%**	23.4%	12.5%	25.0%	12.5%
2010-2011	18.2%	**0.0%**	24.2%	15.2%	19.7%	15.2%
2011-2012	20.0%	**3.1%**	24.6%	10.8%	18.5%	16.9%
2012-2013	22.9%	**2.9%**	18.6%	11.4%	20.0%	15.7%
2013-2014	23.6%	**2.8%**	18.1%	9.7%	18.1%	19.4%
2014-2015	20.5%	**5.5%**	17.8%	6.8%	19.2%	19.2%
2015-2016	17.7%	**5.1%**	15.2%	11.4%	17.7%	12.7%

Strategy One: Dual-Career Services

Progress: Two groups within the Erie Area were approached to sustain dual career activities. These groups were identified because their missions dovetailed with the goals of the strategy. Ultimately, both groups declined to take on the initiative. Strategy leaders then reached out to a regional Higher Education Recruitment Consortium (HERC) to maintain the regional focus of this strategy.

Evaluation/Assessment: Data is generated by HERC on posted jobs**.** Procedures are being adopted internally to capture data on dual career issues from candidates interviewed on campus and new hires.

Future Steps:

- Create procedures within Human Resources to gather and analyze data.
- From the data analysis, determine if HERC membership helps recruit and retain female STEM faculty.

Sustainability Plans: In 2015, Gannon University joined the Ohio-Western PA – West Virginia Higher Education Recruitment Consortium, as a means to sustain the Dual Career Strategy

- **www.hercjobs.org/oh-western-pa-wv/**

Strategy One: Dual-Career Services

Data from www.careersfor2.com

	Year 1-2011-2012	Year 2-2012-2013	Year 3-2013-2014	Year 4-2014-2015
Number of organizations contacted to use website to advertise professional openings	51	411	415	415
Number of participating consortium members	15	5	6	7
Number of people registering for the service	0	4	16	6
Number of people who find jobs using this service	0	0	0	0
Number of companies who utilize site for employment announcements	3	4	27	11
Number of positions listed	15	9	167	96
Number of registered people who use the service	0	1	6	3
Number of positions a spouse/partner applies to	0	0	2	0
Number of interviews obtained by a spouse/partner as a consequence of DCCNP activities	0	0	0	0
Number of positions filled by a spouse/partner using DCCNP website	0	0	0	0
Number of faculty who are retained by the university because spouse/partner found employment	0	0	0	0
Number of faculty who are retained by the university because spouse/partner found employment	0	0	0	0

Data from www.HERCjobs.org

	Year 5-2015-2016
Number of open positions listed (3/16 to 5/16)	13
Number of closed positions listed (10/15 to 4/16)	47
Average number of days jobs posted	64
Range of applicants viewing open positions	87-360
Range of applicants who viewed closed positions	84-5139
Number of applicants delivered to open positions	0
Number of applicants delivered to closed positions	9
Number of applicants brought to campus for interviews	Unknown
Number of positions filled by an applicant using the HERC website	Unknown
Number of faculty whose spouse/partner used the HERC website	Unknown
Number of faculty who are retained by the university because spouse/partner found employment	Unknown

Data Analysis: For the first 4.5 years of the grant period, dual career job data was collected from an internally developed website (www.careersfor2.com). Beginning in October 2015, data was collected from the regional HERC website.

Strategy Two: Research Initiation Award

Resources: Three credits of release time per semester for two years and a total of $7500 for a research project.

Progress: To date, four female STEM faculty members have received the RIA. Additionally, two other female faculty were awarded release time only for 2015-16 from this grant. In Year Five of the grant, 5 of the 12 eligible faculty applied for the RIA. Dr. Lisa Nogaj, Associate Professor in Chemistry, received the award for her proposal, *Optical Sensors Based on Carbon Nanotube Fluorescence.* Her work has not yet been assessed.

The progress of the first RIA awardee, Dr. Sarah Ewing, was evaluated at the end of her two year award period using the rubric developed by the co-PIs and presented at the 2014 ADVANCE conference. Dr. Ewing was able to significantly increase the quantity of peer-reviewed scholarship resulting from her research while increasing the level of involvement of undergraduate students in her work. In two years, eight undergraduates made enough progress in research either to present at professional conferences or publish work. The following table shows a comparison of her scholarship with that of two peers who did not receive release time/RIA.

Strategy Two: Research Initiation Award (RIA)

Comparison of Awardee #1 with Science Colleagues without the Award. While the percent of peer reviewed work is similar among these colleagues, the total number of points established by the rubric for the awardee is higher.

	AY 13-14 Points	AY 12-13 Points	AY 11-12 Points	AY 10-11 Points	AY 09-10 Points	AY 08-09 Points
Total Points RIA awardee # 1	**65***	**19***	**22**	**6**	**9**	**N/A**
Total Points Colleague 1 w/o award	**0**	**16**	**14**	**13**	**5**	**8**
Total Points Colleague 2 w/o award	**22**	**25**	**13**	**4**	**N/A**	**N/A**

The second awardee, Dr. Lin Zhao, Electrical and Computer Engineering (ECE) Department, significantly improved her portfolio as a result of the RIA. The ECE department has masters and undergraduate level students; faculty typically teach 18 credits yearly rather than the 24 taught by science faculty. With the RIA, this faculty member's project, *Doubly-Fed-Induction-Generator Modeling and Control for Wind Energy Harvesting,* resulted in increased collaborations, publications, and conference attendance. Three of the conference papers were the direct result of the RIA. Each of these have graduate student co-authors.

Category	Points per item	AY* 14-15 Points	AY* 13-14 Points	AY 12-13 Points	AY 11-12 Points	AY 10-11 Points
Professional, Peer-reviewed & Communicated						
External Grants received larger than $50,000	5					
Published International Journal articles / Book Chapters	5	10		5		
Published Articles; National or International Conference Paper/Proceedings	4	20	12	4	12	8
External grants received less than $50,000 but more than $20,000	4					
External grants received less than $20,000	3					
Research/poster presentations given at meetings/conferences	3	6	6	6	12	8
Professional & Communicated						
Internal grants received	1					
Mentoring student research grants	1					
Non peer-reviewed (student or otherwise) oral/poster presentations	1					
Total Points		**36**	**18**	**16**	**24**	**16**
% of work peer reviewed		**100%**	**100%**	**100%**	**100%**	**100%**

The interim report of the third awardee indicates presentation at three conferences, with inclusion of undergraduate coauthors on all three presentations.

Challenges: Direct funding of the RIA for female, STEM faculty is unlikely to be continued in its current form.

Impact and Sustainability:
The University has made several changes and invested additional resources that are likely to positively impact STEM female faculty.

- Significantly increased the budget for internal faculty research and development grants.
- Increased the quantity and redistributed release time credits across three colleges.
- Implemented a formal application process for awarding of the release time.

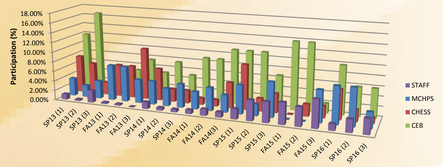
This award demonstrated significant impact on

- Faculty publications, professional collaborations, conference attendance
- Undergraduate research participation and portfolios

Strategy Three: Leadership Development

Progress: Each year of the grant, three leadership trainings (2.5 hours each) and one leadership forum for chairs (2.5 hours) were offered per semester. During each of the last three years, one all day leadership event was organized. The chart below shows the percent participation of faculty from all three colleges, as well as staff. Formal inclusion of staff, since SP15, demonstrated the university-wide need to continue this strategy.

Strategy 3, Activity 1
Leadership Development Training



Semester, Year and Number of event (SP = Spring, FA = Fall)
MCHPS = Health Professions and Sciences; CHESS = Humanities, Education and Social Sciences; CEB = Engineering and Business

Strategy 3, Activity 3: One-day Leadership Seminar

Date	Topic (*Theme*)	Attendance
20 May 2014	Transformational Leadership (*Personal Exploration*)	78
19 May 2015	Project Management (*Tool*)	114
17 May 2016	Understanding and Leading Organizational Change (*Systems*)	35

Evaluation/Assessment: Workshop topics were selected based on requests from participants. Presenters were a combination of external and internal experts on the selected topics. Participant evaluations indicated that workshops were useful and well executed, and that they met their stated objectives.

Sustainability Plans: The administration of the workshop series will be transferred to the Academic Administration and the Center for Excellence in Teaching and Learning. The focus of the leadership offerings will become broader to encompass a variety of topics in order to sustain appeal and attract university-wide participants.

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Website: http://www.gannon.edu/transform