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Federal Agency and Organization Element to Which Report is Submitted:

4900

Federal Grant or Other Identifying Number Assigned by Agency:

1409638

Project Title:

A Catalyst to ADVANCE the Participation and Advancement of Women in Academic STEM Careers at Middle Tennessee State University

PD/PI Name:

- Brad Bartel, Principal Investigator
- Wandi Ding, Co-Principal Investigator
- Jackie Eller, Co-Principal Investigator
- Judith Iriarte-Gross, Co-Principal Investigator
- Karen Petersen, Co-Principal Investigator

Recipient Organization:

Middle Tennessee State University

Project/Grant Period:

08/01/2014 - 07/31/2017

Reporting Period:

08/01/2015 - 07/31/2016

Submitting Official (if other than PD\PI):

- Judith Iriarte-Gross
- Co-Principal Investigator

Submission Date:

07/21/2016

Signature of Submitting Official (signature shall be submitted in accordance with agency specific instructions)

Judith Iriarte-Gross

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Accomplishments

* What are the major goals of the project?

The overarching goal of our project is to identify best practices for the recruitment, retention and promotion of women STEM faculty and thus, promote gender equity at Middle Tennessee State University, MTSU. This study, *A Catalyst to ADVANCE the Participation and Advancement of Women in Academic STEM Careers at Middle Tennessee State University*, will help us identify

barriers that affect recruitment, retention, participation and promotion of women STEM faculty on our campus.

The major activities will be directed by the Project Leadership Team (PLT) and will provide answers to the following:

1. What is the distribution of MTSU STEM faculty by gender, rank and department?
2. What is the gender distribution of MTSU STEM faculty in leadership positions?
3. What are the outcomes of the tenure and promotion process for MTSU STEM faculty?
4. What is the allocation of resources for MTSU STEM faculty by gender?
5. What are the processes that lead to divergent outcomes and resource allocation by gender in STEM disciplines at MTSU?
6. Which policy changes could improve the recruitment, retention, and promotion of STEM women at MTSU?

We proposed the following activities for our self-assessment study:

1. Collection, analysis and synthesis of institutional data;
2. Development, administration and analysis of a Campus Climate Survey;
3. Conduct Campus Focus Groups on areas of concern identified by the survey;
4. Qualitative Interviews with women STEM faculty from departments that demonstrate the need for fuller information and analysis, dependent on the survey and institutional data; and
5. Identify and review MTSU and Tennessee Board of Regents (TBR) policies relevant to recruitment, retention and promotion of faculty. Additional policies may be identified for review dependent on findings from the climate survey, focus groups and interviews.

*** What was accomplished under these goals (you must provide information for at least one of the 4 categories below)?**

Major Activities:

1. The Project Leadership Team (PLT) finished collection of both the climate survey and institutional data. We completed the analysis of the climate survey data. The Project

Leadership Team has conducted the analysis of the STEM faculty institutional data related to: hiring, salary, start-up funds, termination/resignation, and tenure and promotion.

2. In May and June 2015, we conducted two focus groups with STEM women faculty, tenured or tenure-track, including all ranks to better understand the concerns, issues, practices, and experiences of these faculty. Our sample consisted of STEM women faculty who had volunteered to participate and some who were recruited to participate. We completed the focus groups and the analysis of the qualitative data for these groups. We determined that qualitative interviews were not needed.

3. The PLT continued to promote the significance of the ADVANCE grant to campus through:

- Communications from the Provost's office and from members of the internal advisory board (IAB);
- Development of a MTSU ADVANCE website is found at <http://www.mtsu.edu/wistem/ADVANCE/index.php>
- News and information related to ADVANCE are posted on the *Women In STEM Center at MTSU* Facebook page.
- An email address for the project was established: ADVANCE@mtsu.edu.

4. Co-PI Petersen attended the 2016 ADVANCE/GSE Program Workshop in May 2016.

5. The PLT, IAB, and External Advisory Board (EAB) hosted the MTSU ADVANCE conference in April 2016.

Specific Objectives:

Significant Results:

Key outcomes or Other achievements:

1. A salary equity study was conducted in 2016. This study was stimulated in part by the MTSU ADVANCE Project.
2. Academic Affairs has begun the development of a faculty mentoring program.
3. Campus-wide tenure and promotion workshops were reintroduced and revised due to the MTSU ADVANCE Project.

*** What opportunities for training and professional development has the project provided?**

1. Co-PI Petersen attended the 2016 ADVANCE/GSE Program Workshop in May 2016. She presented MTSU climate survey results at the poster session, attended and discussed posters with other participants, attended Keynote and Plenary sessions, and attended breakout sessions related to institutional transformation. Breakout Sessions attended:

BEING A CHANGE LEADER IS HARD WORK! COLLECTIVE LEARNINGS AND REFLECTIONS FROM 2014 ADVANCE IT AWARDEE LEADERS

WORKING FROM THE OUTSIDE IN: HOW STRUCTURAL TRANSFORMATION IMPROVES STEM CLIMATE

2. The MTSU ADVANCE Conference was held on April 22, 2016. Faculty and administrators, IAB and EAB members participated. The conference program and videos of the keynote and panels are found on the ADVANCE website. The conference program is attached to this report. Training and professional development at this conference included:

- A welcome by PI Bartel on the importance of ADVANCE for MTSU women STEM faculty, for all faculty and for the university overall.
- A keynote presentation by Dr. S. Keith Hargrove, Dean, College of Engineering, Tennessee State University and PI, TSU's NSF ADVANCE Catalyst Project. The title of his presentation was: *An Institutional Strategy for Promoting Women STEM Careers at TSU. Authors: S. Keith Hargrove and Lesia Crumpton-Young.*
- Panel presentation topics were identified based on the results of the climate survey and focus groups. These panels were:
 - *Mentoring Q&A*
 - *Tenure and Promotion Q&A*

3. The PLT attended the Women in Higher Education Tennessee (WHET), 2015 Annual Conference. The theme of the conference was *Pathways to Success*. Sessions included Mentorship, Cultivating Personal Potential and Advocating Professional Growth. The PLT presented preliminary results for the climate survey found on the MTSU ADVANCE 2015 poster. <http://www.whettn.org/news-events/>

4. Professional development of graduate assistants who assisted with the data analyses.

*** How have the results been disseminated to communities of interest?**

1. Co-PIs Ding, Iriarte-Gross and Petersen presented preliminary results found on the 2015 MTSU ADVANCE poster at the WHET Annual Conference in October 2015.

2. Co-PI Eller presented preliminary results found on the 2015 MTSU ADVANCE poster at the Mid-South Sociological Association conference in October 2015.

3. The PLT presented preliminary results found on the 2015 MTSU ADVANCE poster to the MTSU faculty and administrators in a *Report to Campus*, November 2015.

4. Co-PI Iriarte-Gross presented preliminary results found on the 2015 MTSU ADVANCE poster at the Pacifichem 2015 conference, December 2015.

5. The PLT presented updated findings at the MTSU ADVANCE Conference, April 2016.
6. Co-PI Petersen presented the 2016 MTSU ADVANCE poster at the 2016 ADVANCE/GSE Program Workshop in May 2016.

*** What do you plan to do during the next reporting period to accomplish the goals?**

The PLT will develop a complete set of recommendations, produce the final report for this project, disseminate the complete report to the University, prepare articles for publication and submit the final report to NSF.

Supporting Files

	Filename	Description	Uploaded By	Uploaded On
(Download)	ADVANCE poster May 2016.pdf	Poster presented at the 2016 ADVANCE workshop.	Judith Iriarte-Gross	07/01/2016
(Download)	WHET ADVANCE 2015.pdf	MTSU ADVANCE presentation at the Women in Higher Education, Tennessee annual meeting.	Judith Iriarte-Gross	07/01/2016
(Download)	Preliminary Results Presentation.pdf	Preliminary results presented to campus in November 2015.	Judith Iriarte-Gross	07/01/2016
(Download)	MTSU ADVANCE conference program.pdf	Conference program with agenda, bios of panelists, PLT, IAB and EAB members.	Judith Iriarte-Gross	07/09/2016

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Products

Books

Book Chapters

Inventions

Journals or Juried Conference Papers

Licenses

Other Conference Presentations / Papers

Other Products

Other Publications

Patents

Technologies or Techniques

Thesis/Dissertations

Websites

- *MTSU ADVANCE Project*
<http://www.mtsu.edu/wistem/ADVANCE/index.php>

On this website, we included the following content describing the MTSU ADVANCE Project:

Overview: ADVANCE Project Summary

External Advisory Board

Internal Advisory Board

Proposal Narrative

Project Leadership Team

MTSU Climate Survey

Presentations

Resources

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Participants/Organizations

What individuals have worked on the project?

Name	Most Senior Project Role	Nearest Person Month Worked
Bartel, Brad	PD/PI	1
Ding, Wandi	Co PD/PI	1
Eller, Jackie	Co PD/PI	1

Name	Most Senior Project Role	Nearest Person Month Worked
Iriarte-Gross, Judith	Co PD/PI	1
Petersen, Karen	Co PD/PI	1
Hein, Michael	Faculty	1
Webber, Gretchen	Faculty	1
Estes, Michelle	Graduate Student (research assistant)	1
Meyerink, Denielle	Graduate Student (research assistant)	1

Full details of individuals who have worked on the project:

Brad Bartel

Email: brad.bartel@mtsu.edu

Most Senior Project Role: PD/PI

Nearest Person Month Worked: 1

Contribution to the Project: Dr. Brad Bartel is the PI for the MTSU ADVANCE Project. He was the University Provost through May 2016 and returned to the faculty at the end of the spring 2016 semester. PI Bartel announced the award to the campus community at the start of the fall 2014 semester and continues to encourage the commitment of key MTSU administrators from top down on this project. As Provost, he provided the necessary university resources required for the success of MTSU ADVANCE. These resources also included the assistance of Academic Affairs and the Office of Institutional Effectiveness Planning and Research with respect to data collection for this study. He is fully informed on the progress of the grant and assists the co-PIs, project evaluator, and research associates as needed. He provides space and a conference call line for PLT, IAB, and EAB meetings. PI Bartel receives and reviews monthly budget reports from the MTSU Office of Research Services. He provided funding and clerical assistance for the MTSU ADVANCE Conference held in April 2016.

Funding Support: None

International Collaboration: No

International Travel: No

Wandi Ding

Email: wandi.ding@mtsu.edu

Most Senior Project Role: Co PD/PI

Nearest Person Month Worked: 1

Contribution to the Project: Dr. Wandi Ding is a member of the Project Leadership Team (PLT) and co-PI on this project. Working with the PLT, IEPR and the Academic Affairs, Ding conducted the analysis of the institutional data: Tenure track/tenured STEM faculty, STEM faculty hiring, STEM faculty salary data, STEM faculty start-up funds, STEM faculty termination/resignation data, and STEM faculty tenure and promotion data. She co-presented at the WHET conference and the on-campus presentation to faculty, worked with co-PIs on the 2016 MTSU ADVANCE conference. Ding met regularly with the leadership team and

participated in discussions of policy change recommendations.

Funding Support: None

International Collaboration: No

International Travel: No

Jackie Eller

Email: jackie.eller@mtsu.edu

Most Senior Project Role: Co PD/PI

Nearest Person Month Worked: 1

Contribution to the Project: Dr. Eller accepted the position as the Dean of the College of Graduate Studies and Vice Provost for Research one month prior to the awarding of the grant. She has served in a non-reimbursed capacity due to her administrative position. She has attended most meetings of the ADVANCE Project Leadership Team (PLT). Dr. Eller has contributed to the development of the survey instrument and assisted in the overall analysis of the survey data that led to the focus groups. She contributed to the question design for the focus groups, assisted in arranging the logistics for the focus groups, attended each of the focus groups, and provided assistance in the interpretation of the focus group data. She assisted with the planning and promotion of the MTSU ADVANCE Conference and organized the Tenure and Promotion Q&A panel.

Funding Support: None

International Collaboration: No

International Travel: No

Judith Iriarte-Gross

Email: judith.iriarte-gross@mtsu.edu

Most Senior Project Role: Co PD/PI

Nearest Person Month Worked: 1

Contribution to the Project: Dr. Judith Iriarte-Gross is member of the Project Leadership Team (PLT) and a co-PI on this project. She manages the overall project which is based in the MTSU Women In STEM (WISTEM) Center. She works with the PLT, IAB and EAB to implement MTSU ADVANCE activities. These activities included the Kick-Off in October 2014, monthly meetings of the PLT and IAB, website management and social media dissemination, promotion of the campus climate survey, dissemination events, and was the lead on the organization of the 2016 MTSU ADVANCE Conference. She worked with Provost Bartel and Academic Affairs to schedule and host the MTSU ADVANCE Conference in April 2016. Participants included both tenure and tenure-track faculty, administrators, IAB and EAB members. The keynote speaker, Dr. S. Keith Hargrove of Tennessee State University, was the PI of its ADVANCE Catalyst grant and is a member of the MTSU ADVANCE EAB. She also invited Dr. Donna Dean, past President of AWIS, a career consultant for ACS, and a member of the EAB, to participate on the Mentoring Q & A panel for the conference. She continues to promote faculty involvement with ADVANCE through informal networking and formal meetings with colleagues across campus. Dr. Iriarte-Gross is a long-time AWIS member and will propose appropriate AWIS professional

development workshops as necessary. PI Bartel and Dr. Iriarte-Gross oversee the budget for the project and approves timesheets for graduate research assistants. She assisted with and co-presented the presentation at the 2015 WHET conference. She made arrangements and worked with the co-PIs on the presentation to campus. She collaborated with co-PI Petersen on 2016 MTSU ADVANCE Project poster for the 2016 ADVANCE/GSE Workshop.

Funding Support: None

International Collaboration: No

International Travel: No

Karen Petersen

Email: karen.petersen@mtsu.edu

Most Senior Project Role: Co PD/PI

Nearest Person Month Worked: 1

Contribution to the Project: Dr. Karen Petersen created the survey-based tables and charts used in the dissemination activities described herein and in the final report, which is being completed currently. She wrote interpretation sections for the quantitative analysis and worked with Faculty Associate Webber to integrate the qualitative data into the report. Petersen co-presented at the on-campus presentation and at the WHET conference and presented at the 2016 ADVANCE/GSE Workshop. Additionally, Petersen met regularly with the leadership team and participated in discussions of policy change recommendations.

Funding Support: None

International Collaboration: No

International Travel: No

Michael Hein

Email: Michael.Hein@mtsu.edu

Most Senior Project Role: Faculty

Nearest Person Month Worked: 1

Contribution to the Project: Dr. Hein attended planning meetings and the workshop day. He participated in discussions about the survey results and the integration of the survey results with the focus groups. He provided progress evaluation reports in May, after the campus wide workshops. He was a participant in the tenure and promotion panel and presented best practices in tenure and promotion based on guidelines that he led the development of for the psychology department.

Funding Support: None

International Collaboration: No

International Travel: No

Gretchen Webber

Email: Gretchen.webber@mtsu.edu

Most Senior Project Role: Faculty
Nearest Person Month Worked: 1

Contribution to the Project: Dr. Webber was involved in survey development, and was the primary researcher in coordinating, and conducting campus focus groups. She completed focus group data analysis in the fall semester 2015. She developed the primary themes that emerged and synthesized them into clear themes. Further, Dr. Webber and Dr. Petersen worked together to organize and integrate statistical findings with the qualitative themes. In coordination with other team members, she was instrumental in developing the presentation of research findings to a campus-wide audience. Dr. Webber was also involved in planning and organizing the MTSU ADVANCE one-day conference held in April 2016. Further, she contributed to the poster that was presented at the ADVANCE and GSE workshop in May 2016. Throughout the project, Dr. Webber participated and contributed to regular team meetings, and communications to the campus regarding the project's status.

Funding Support: None

International Collaboration: No

International Travel: No

Michelle Estes

Email: mle3k@mtmail.mtsu.edu

Most Senior Project Role: Graduate Student (research assistant)

Nearest Person Month Worked: 1

Contribution to the Project: Michelle Estes is a graduate student in sociology and fulfilled multiple roles on the project. She assisted Dr. Webber with the qualitative research of this study. Ms. Estes has helped with developing focus group participant lists and with the recording of the focus group participants. She attended both focus groups, assisted with all logistics, took notes, and has completed transcriptions from the recordings of both focus groups. She also assisted with thematic analysis, and conducted a literature review of STEM women issues relevant to the focus group topics.

Funding Support: None

International Collaboration: No

International Travel: No

Denielle Meyerink

Email: dm4y@mtmail.mtsu.edu

Most Senior Project Role: Graduate Student (research assistant)

Nearest Person Month Worked: 1

Contribution to the Project: Denielle Meyerink was a graduate student in I/O Psychology and a Project Associate for the Center for Organizational and Human Resource Effectiveness (www.cohre.net). She graduated in May 2016. She worked with Dr. Michael Hein, the ADVANCE project's process evaluator. Using previous surveys utilized and developed by the Center for Organizational and Human Resource Effectiveness (COHRE) at MTSU and other

STEM survey questionnaires, Denielle and the other PLT members created a survey to assess the different STEM departments at MTSU for the purposes of this grant. Denielle incorporated the desired questions for the survey into Survey Monkey, an online software questionnaire program. After incorporating all questions and using skip logic to ensure the survey was fully functioning properly, the survey was reviewed by the grant committee members to ensure that the questions were fully encompassing the scope of questions necessary to attain the desired information from participants. Once the survey had been approved by committee members, the communications liaison for the project emailed out a link to all departments of the university that are considered "STEM" departments. Once the survey closing date arrived, Denielle closed the link. Denielle then assessed the responses and incorporated the final response numbers into the January Progress Report, broken down by the different colleges and departments at MTSU. Denielle exported the data files into several different formats and sent the screened information to the appointed committee members for a more detailed analysis of the results.

Funding Support: None

International Collaboration: No

International Travel: No

What other organizations have been involved as partners?

Name	Type of Partner Organization	Location
MTSU Institutional Effectiveness, Planning and Research	Academic Institution	Murfreesboro TN
MTSU Institutional Equity and Compliance	Academic Institution	Murfreesboro TN
MTSU Provost's Office	Academic Institution	Murfreesboro TN

Full details of organizations that have been involved as partners:

MTSU Institutional Effectiveness, Planning and Research

Organization Type: Academic Institution

Organization Location: Murfreesboro TN

Partner's Contribution to the Project:

Collaborative Research

More Detail on Partner and Contribution: IEPR provided salary data for the MTSU ADVANCE project.

MTSU Institutional Equity and Compliance

Organization Type: Academic Institution
Organization Location: Murfreesboro TN

Partner's Contribution to the Project:

Financial support
In-Kind Support
Collaborative Research

More Detail on Partner and Contribution: MTSU IEC provided the reception for EAB meeting in April 2015.

MTSU Provost's Office

Organization Type: Academic Institution
Organization Location: Murfreesboro TN

Partner's Contribution to the Project:

In-Kind Support
Facilities
Collaborative Research

More Detail on Partner and Contribution: The Provost's Office provided Tenure Track/Tenured and Full Time faculty data which included Hiring data, Startup packages, and Faculty terminations-resignations data. Space and funding for the Kick-Off reception as well as promotion of the campus climate survey to the campus was provided by Academic Affairs.

What other collaborators or contacts have been involved?

Nothing to report

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Impacts

What is the impact on the development of the principal discipline(s) of the project?

Nothing to report.

What is the impact on other disciplines?

Nothing to report.

What is the impact on the development of human resources?

This project makes a recommendation for post-hire training for STEM women faculty focused on the processes for grant applications, resource allocation and the importance of asking for assistance. Chairs and mentors are encouraged to participate in this training as well.

Promotion and tenure policies are being re-evaluated and further training recommended.

Formal targeted mentoring and systemic recruitment of women for leadership roles are recommended.

What is the impact on physical resources that form infrastructure?

Nothing to report.

What is the impact on institutional resources that form infrastructure?

Nothing to report.

What is the impact on information resources that form infrastructure?

As mentioned earlier, the 2016 faculty salary equity study and campus-wide tenure and promotion workshops were reintroduced and revised, in part, a result of the MTSU ADVANCE project.

What is the impact on technology transfer?

Nothing to report.

What is the impact on society beyond science and technology?

The MTSU ADVANCE project hopes to make an impact on the flexibility of leave policies for women STEM faculty.

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Changes/Problems

Changes in approach and reason for change

Nothing to report.

Actual or Anticipated problems or delays and actions or plans to resolve them

Nothing to report.

Changes that have a significant impact on expenditures

Nothing to report.

Significant changes in use or care of human subjects

Nothing to report.

Significant changes in use or care of vertebrate animals

Nothing to report.

Significant changes in use or care of biohazards

Nothing to report.

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Special Requirements

Responses to any special reporting requirements specified in the award terms and conditions, as well as any award specific reporting requirements.

We have included the progress report by Dr. Michael Hein, MTSU ADVANCE Project evaluator.

Supporting Files

	Filename	Description	Uploaded By	Uploaded On
(Download)	Progress Report May 15 2016.pdf	Progress report from project evaluator.	Judith Iriarte-Gross	07/12/2016