

YEAR 1 EXTERNAL EVALUATION

MAKING WAVES (WOMEN ACADEMICS VALUED AND ENGAGED IN STEM): DISRUPTING MICROAGGRESSIONS TO PROPAGATE INSTITUTIONAL TRANSFORMATION

**NSF ADVANCE IT GRANT, UNIVERSITY OF MASSACHUSETTS
LOWELL**

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1. EXECUTIVE SUMMARY

The University of Massachusetts Lowell (UML) completed its first year of their NSF ADVANCE-IT grant, Making WAVES (also referred to as WAVES). The grant seeks to establish an academic environment that supports STEM women to achieve to their highest potential by reducing the interpersonal and institutional microaggressions that undercut both their ability to be productive and their general sense of well-being. The Year 1 external evaluation incorporates both quantitative and qualitative data collected by the internal evaluation team and external evaluator. The report shares findings on the extent to which the Year 1 grant activities have moved UML closer to achieving its three goals and social science research, detailed below:

Goal 1: Disrupt microaggressions

- **Survey-feedback cycles** to enable departments and colleges to raise awareness and help them set and track progress toward equity goals
- **Information campaign** to raise awareness of subtle biases that affect women in STEM
- **Equity Allies/Bystander Training for faculty** to promote skills to address subtle bias and build broad-based support for reducing bias at interpersonal and institutional levels
- **Equity Allies Training for Chairs** that includes leadership skills for addressing subtle biases

During grant Year 1, Making WAVES focused on its information campaign to raise awareness of the subtle biases that affect women in STEM. Efforts included presentations to key stakeholders (Deans, Faculty Senate, etc.), launching its website and its microaggressions blog (“IttooamSTEM”), a kick-off event, and public events such as the Provost Speaker Series featuring Dr. Stephanie Goodwin and Dr. Lisako McKyer. Data from post-event evaluation forms and interviews suggest the information campaign has helped raise the visibility of Making WAVES and of the topic of biases such as microaggressions. Making WAVES also met with the College of Engineering to present findings from the SGGI Survey and lay the groundwork for working with some of the engineering departments to develop equity goals.

The information campaign should provide the foundation to support other program initiatives. Of these, the Bystander Training is a priority. By the end of Year 1, Equity Leaders had been identified in the College of Engineering and College of Sciences to help develop the Bystander Training and begin implementation in grant Year 2.

Goal 2: Provide alternative support mechanisms for faculty

- Expand the **50/50 Lecture series** to highlight multiple pathways for success in STEM and provide mentoring opportunities for faculty hosts

- **IDEA Communities** (Inter-Disciplinary Exchange and Advancement Communities) to provide collaborative mentoring and support for both female and male faculty

Two STEM women hosted 50/50 Lecture speakers during Year 1. Interest in hosting has been lower than anticipated, but the team is working to get the word out and emphasize the benefits to faculty hosts. The IDEA Communities intervention is still in the planning stages and the arrival of the new Vice Provost for Faculty Success provides new opportunities to coordinate efforts.

Goal 3: Promote Equity and Accountability

- **Foggy Climate Initiative** to establish detailed decision-making procedures for high stakes decisions and to analyze and promote equity by gender around service assignments (P&T, annual reviews, merit)
- **WAVES Accountability Initiative** to create and implement a protocol for college and department self-assessment, goal setting, action planning, and annual evaluation of progress

Work to support Goal 3 is in its beginning stages. The procedural guidelines for personnel decisions made available to departments prior to the grant provide an opportunity for Making WAVES to work with departments and colleges to improve transparency in personnel decision-making and evaluation processes. The university's recent implementation of Digital Measures can also support Making WAVES efforts to promote gender equity of service. WAVES is collaborating with university efforts to pilot the national STEM Equality Achievement (SEA) Change Program and intends for Department Equity Plans to dovetail with the SEA Change.

Social Science Research

Three related studies, each grounded in daily diary methodology were proposed to (1) provide new, nuanced and more ecologically valid insights into microaggressions and their consequences; (2) add to the body of literature on understanding how gendered microaggressions are experienced in the context of intersectional racial identities; (3) develop a typology of factors that hinder (or facilitate) confronting microaggressions and (4) answer the call for additional research on effective intervention strategies.

During Year 1, the team drafted their baseline instrument for the first study that uses daily diaries to track occurrences of microaggressions and their relationship with job satisfaction and well-being. The national data collection efforts were launched in October 2017 at the AWIS conference.

Key Recommendations:

Prioritize Activities for Year 2

- Key activities that are central to the ability of the grant to achieve institutional transformation should be prioritized for Year 2.
- Fully launch key activities in Year 2 so that impacts can be assessed before the NSF third year site visit (which could come as early as Fall 2018).

Messaging and Inclusivity

- All NSF-funded disciplines need to be included in activities; as possible extend activities to additional disciplines to promote inclusivity and support institutional transformation.
- Ensure messaging is consistent and develop an “elevator pitch” that summarizes WAVES’s goals and how the institution as a whole will benefit.

Strategic Partnerships

- Think strategically about where WAVES initiatives should “land” at the end of the grant and partner with these offices now to develop and implement initiatives to ensure communication and buy-in.
- Discuss whether WAVES would benefit from an additional internal board comprised of key campus partners that are essential for sustaining program initiatives to obtain their assistance during the planning and implementation stages and increase their investment in sustainability.
- Collaborate and partner with other mentoring initiatives on campus to align efforts; establish clarity with respect to roles and responsibilities.
- Continue to on-board and engage Chairs as active partners whose feedback and input is regularly sought.

Other

- Reach out to other ADVANCE institutions with similar interventions to share resources and best practices.
- Provide as much unit-level data to Deans and Chairs as possible to engage them in discussions of ways to improve equity and transparency.
- The university should invest in centralized collection for critical equity-related data such as promotion and tenure data to ensure the university can adequately monitor these metrics.
- Disseminate key findings from the 2017 SGBI Survey to the entire campus, when available, and invite campus-wide discussion of the findings.

In conclusion, Making WAVES has laid a solid foundation in Year 1. In Year 2, it will be important to prioritize efforts so key activities are fully launched and their impacts can be evaluated to prepare for the NSF third year site visit. The findings (empirical and programmatic) expected to emerge from the grant are likely to identify UML as a national leader in efforts to reduce interpersonal and institutional microaggressions, creating a more just and equitable climate for all faculty.

2. INTRODUCTION

2.1 Organization of the Report

This report is divided into several key sections. Section 2.2 provides a brief overview of the major goals of the University of Massachusetts Lowell (UML) ADVANCE-IT grant, followed by a description of the evaluation objectives and methods (Section 3). Section 4 presents baseline “toolkit” data for a snapshot of gender equity in faculty composition, attrition, hiring, and promotion and tenure at the beginning of the grant period. Section 5 covers the main activities undertaken in Year 1 of the grant, integrating evaluation activities conducted by the internal evaluation team and the external evaluator. The report ends with a summary of main findings and key recommendations.

2.2 Summary of UML’s ADVANCE-IT Grant, Making WAVES

The University of Massachusetts Lowell (UML) is completing its first year of their 5-year NSF ADVANCE-IT grant, Making WAVES (Women Academics Valued and Engaged in STEM), or WAVES for short. The grant’s overarching goal is to establish an academic environment that supports STEM women to achieve to their highest potential by reducing the interpersonal and institutional microaggressions that undercut both their ability to be productive and their general sense of well-being.

To achieve the overarching goal, the specific goals and proposed interventions are:

Goal 1: Disrupt microaggressions

- **Survey-feedback cycles** to enable departments and colleges to raise awareness and also to help them set and track progress toward equity goals
- **Information campaign** to raise awareness of subtle biases that affect women in STEM
- **Equity Allies/Bystander Training for faculty** to promote skills to address subtle bias and build broad-based support for reducing bias at interpersonal and institutional levels
- **Equity Allies Training for Chairs** that includes leadership skills for addressing subtle biases

Goal 2: Provide alternative support mechanisms for faculty

- Expand the **50/50 Lecture series** to highlight multiple pathways for success in STEM and provide mentoring opportunities for faculty hosts
- **IDEA Communities** (Inter-Disciplinary Exchange and Advancement Communities) to provide collaborative mentoring and support for both female and male faculty

Goal 3: Promote Equity and Accountability

- **Foggy Climate Initiative** to establish detailed decision-making procedures for high stakes decisions and to analyze and promote equity by gender around service assignments (P&T, annual reviews, merit)
- **WAVES Accountability Initiative** to create and implement a protocol for college and department self-assessment, goal setting, action planning, and annual evaluation of progress

Social Science Research Agenda

The purposes of the social science research agenda are to: (1) provide new nuanced and more ecologically valid insights into microaggressions and their consequences; (2) add to the body of literature on understanding how gendered microaggressions are experienced in the context of intersectional racial identities; (3) develop a typology of factors that hinder (or facilitate) confronting microaggressions and (4) answer the call for additional research on effective intervention strategies.

Three related studies, grounded in daily diary methodology, will be conducted:

- Study 1: Understanding microaggressions: Incidence, impact and intersectionality
- Study 2: Barriers and facilitators of action in response to microaggressions
- Study 3: Impact of daily diaries on attitudes toward microaggressions

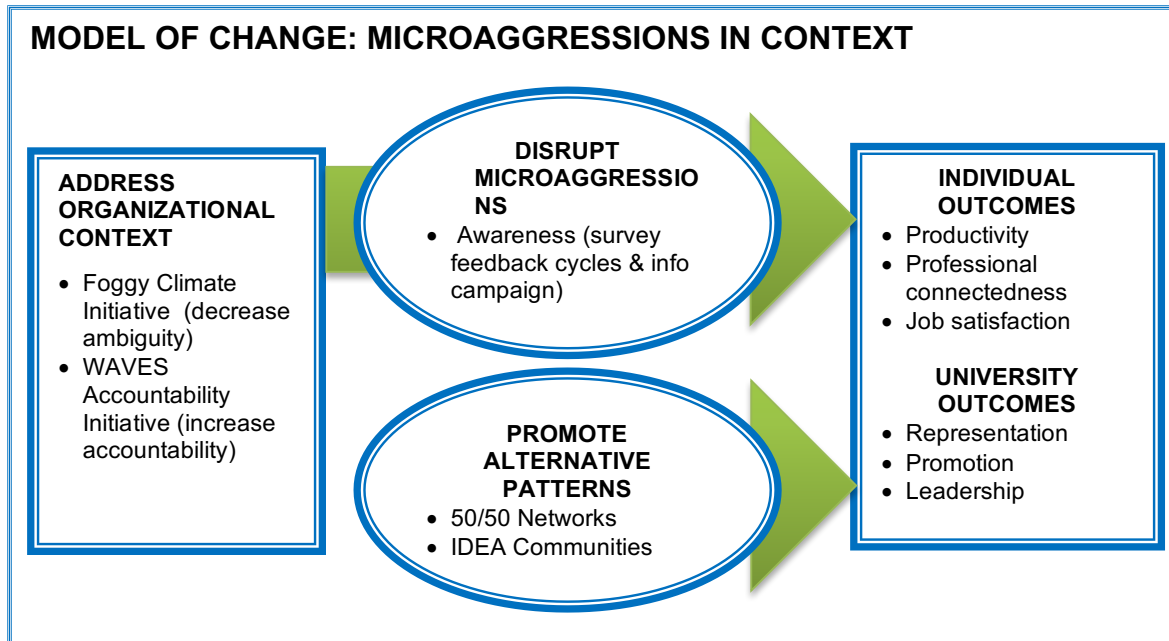
Theory of Change

The theory of change is derived from research evidence that in order to reduce wide-spread microaggressions, organizations must (a) involve multiple levels and diverse constituencies throughout an organization; (b) support the development of alternative patterns; (c) engage in transparent decision making procedures; and (d) create accountability for achieving equity goals. The following complementary interventions are designed to address three interconnected issues:

- *Disrupting microaggressions by engaging the university community* via department-based feedback-goal setting cycles, a multi-pronged information campaign, and bystander training to develop active Equity Allies
- *Promoting alternative interactional patterns that support the success of STEM women* via 50/50 Lectures and IDEA Communities as innovative formats for reducing isolation and providing access to professional and personal resources
- *Changing targeted aspects of the institutional context* via the Foggy Climate Initiative to establish detailed procedures for committee decision making and workload distribution and a WAVES Accountability Initiative

The theory of change guiding the grant activities is presented in Figure 1.

FIGURE 1. MAKING WAVES THEORY OF CHANGE



3. EVALUATION OBJECTIVES AND METHODS

3.1 Evaluation Period and Objectives

This evaluation covers the period between September 14, 2016 (start date) and September 2017, encompassing the grant's first year of funding.

Evaluation objectives for this annual report are primarily formative and include:

- Describing implementation activities, successes and challenges
- Monitoring the status of implementation progress toward program goals
- Providing formative feedback to facilitate project refinements
- Enhancing communication among the Leadership Team and stakeholders
- Establishing baseline measures upon which the impact of program initiatives can be measured

3.2 Structure of Evaluation Responsibilities

Internal and external evaluators are undertaking evaluation activities. Dr. Jill Lohmeier, Associate Professor, Research Methods and Program Evaluation in Education at the University of Massachusetts Lowell is the internal evaluator. She

supervises graduate students and staff at the Center for Program Evaluation who assist the internal evaluation efforts. Key internal evaluation efforts in Year 1 included:

- Assisting with the preparation of the Evaluation Plan
- Developing the program logic model
- Summarizing findings from UML-ADVANCE event evaluation forms
- Providing feedback to the external evaluator and the UML-ADVANCE team on evaluation activities and procedures
- Observing key program events
- Assisting with IRB applications
- Analyzing data from the SGBI Survey and presenting preliminary findings
- Meeting with the Internal Advisory Board and with ADVANCE Program Officers during the NSF Year 1 site visit
- Assisting with the development of baseline assessment survey for Department Chairs about Personnel Committee Procedural Guidelines

Dr. Mariko Chang, President of Mariko Chang Consulting, Inc., is the external evaluator. Key evaluation efforts undertaken by the external evaluator in Year 1 included:

- Assisting with the preparation of the Evaluation Plan
- Providing feedback on internal evaluation efforts
- Attending the July 2017 Making WAVES Retreat
- Meeting with ADVANCE Program Officers during the NSF Year 1 site visit
- Interviewing key stakeholders to inform the annual evaluation
- Conducting an annual external evaluation to provide formative feedback that utilizes data collected by the internal evaluator and the project team

3.3 Evaluation Methods and Data

This external evaluation report incorporates both quantitative and qualitative data, derived from the following sources:

Interviews: As part of her annual site visit, Dr. Chang conducted interviews in September 2017 with 31 key stakeholders, including the PI (Chancellor), Co-PIs, Provost, Internal Advisory Board Members, Vice Provost for Faculty Success, Deans, Social Science Research Team, WAVES Project team, and STEM Department Chairs.

Institutional Data: Department-level data on STEM/SBS faculty composition (such as the number of faculty by rank and sex) and other ADVANCE Indicators Toolkit data were provided to the external evaluator by the project team.

Workshop/Event Evaluations: Evaluation findings from key events and workshops were developed by the internal evaluators and the project team. Findings were

provided to the external evaluator (Appendix A) and key findings are summarized in this report.

Surveys: The Subtle Gender Bias Index (SGBI), developed through the ADVANCE PAID grant, was administered during summer 2017. Preliminary findings were made available to the external evaluator. The findings from the 2017 SGBI Survey can also be compared to the baseline (survey administered prior to the IT grant) to assess changes in awareness and experience of microaggressions. In Year 1, Chairs were also surveyed by Making WAVES to assess departmental use of the new Personnel Committee Procedural Guidelines.

WAVES Program Documentation and Process Data: Information from project activities and project records were utilized as documented in the report.

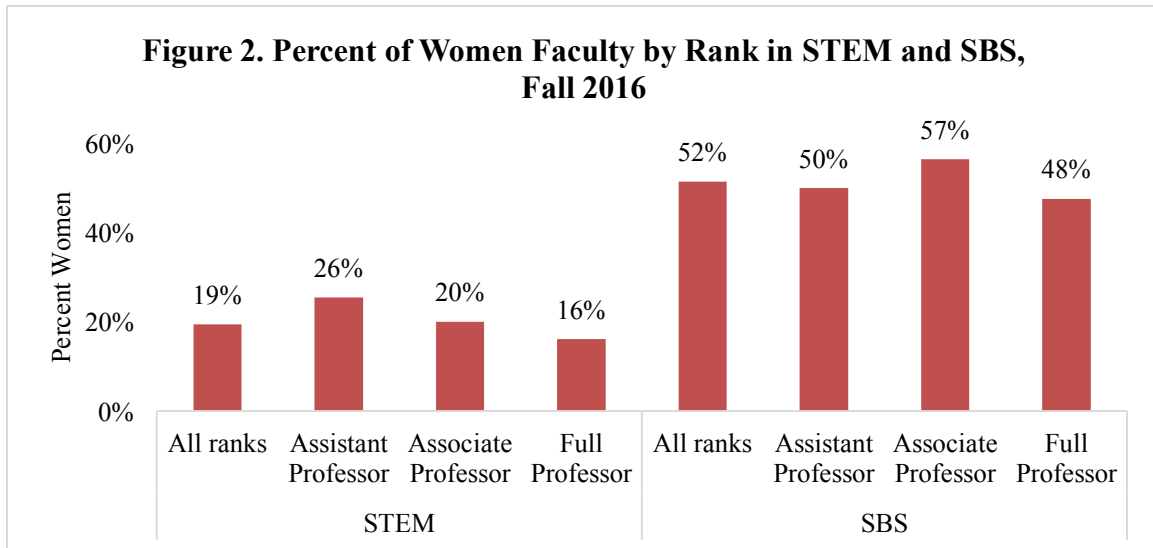
4. SUMMARY OF BASELINE DATA

Baseline and Year 1 data on the representation of women STEM and SBS faculty by rank, hired, retained, tenured, and promoted were obtained from the “Toolkit” Indicator data provided by the UML-ADVANCE team.

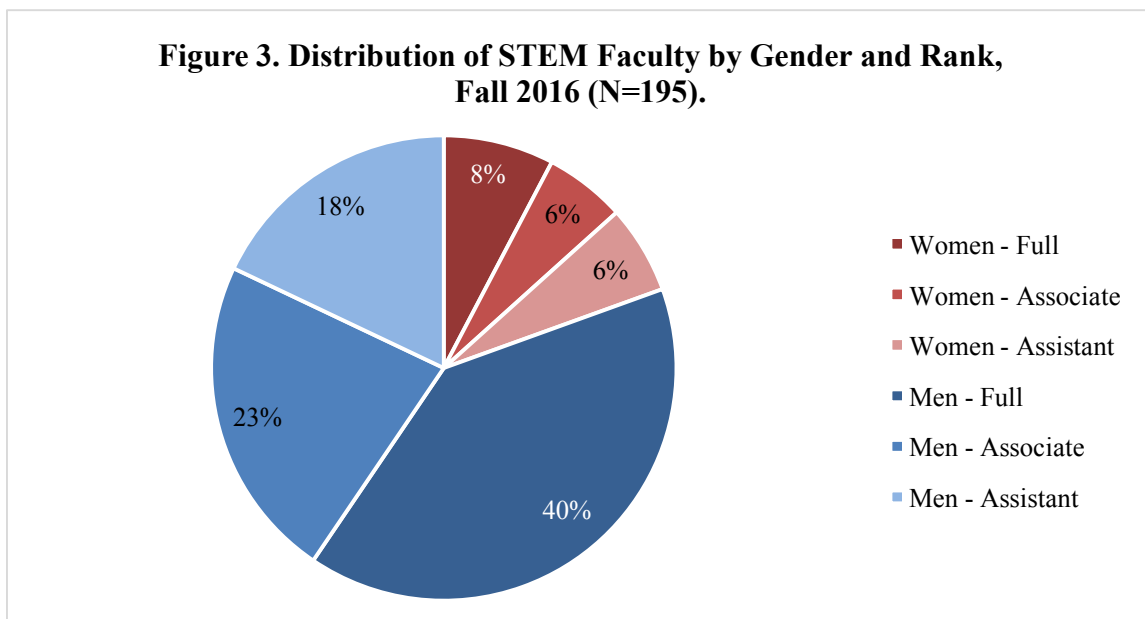
Baseline data for the composition of STEM and SBS women faculty by rank refer to Fall 2016 (Year 1 of the grant). For other data that fluctuate more from year to year and/or have small sample sizes (new hires, retention, tenures, promotions), baseline data are aggregated across the most recent few academic years (based on data availability) to level out the annual variation.

4.1 Composition of Women Faculty in STEM and SBS by Rank

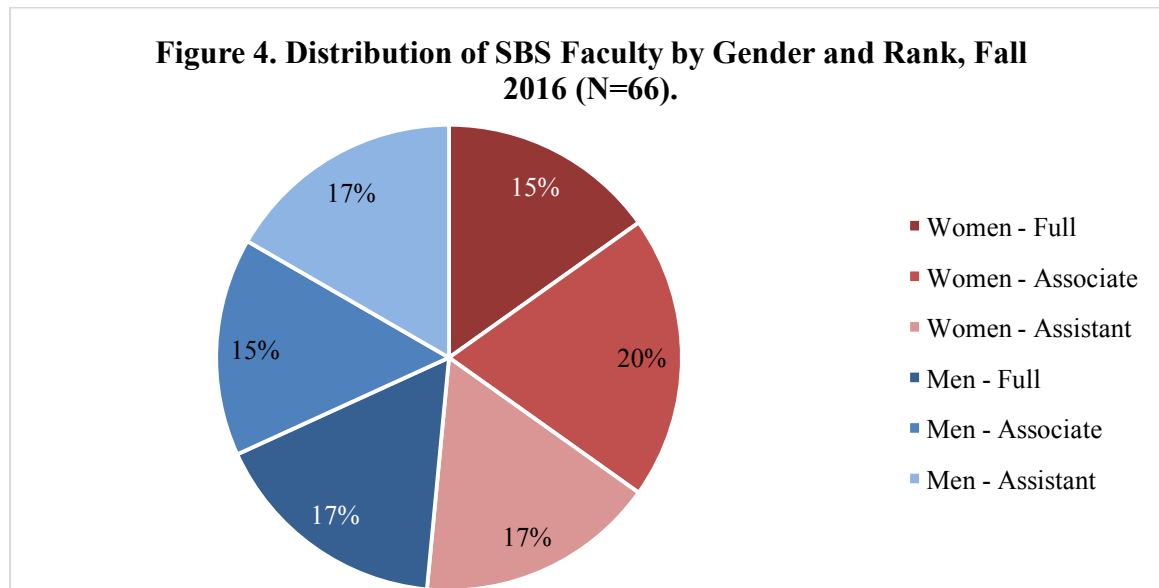
In Fall 2016 (Year 1 of the grant), STEM departments included 195 tenured/tenure-track faculty in total, and SBS included 66 faculty members. Overall, 19% of STEM faculty and 52% of SBS faculty were women (Figure 2). The STEM fields showed a slightly higher proportion of women (26%) in Assistant Professor positions than in Associate or Full Professor ranks (20% and 16%, respectively). In SBS departments, women’s representation is highest among Associate Professors (57%) but is near or at 50% at all ranks.



When viewed from the perspective of the total faculty body, it is easy to see that faculty composition in STEM consists primarily of tenured male professors (Associate and Full Professors) who collectively comprise 63% of the total STEM tenured/tenure-track faculty (Figure 3). In fact, male Full Professors comprise 40% of STEM tenured/tenure-track faculty. In comparison, women Full Professors comprise only 8% of total STEM tenured/tenure-track faculty.

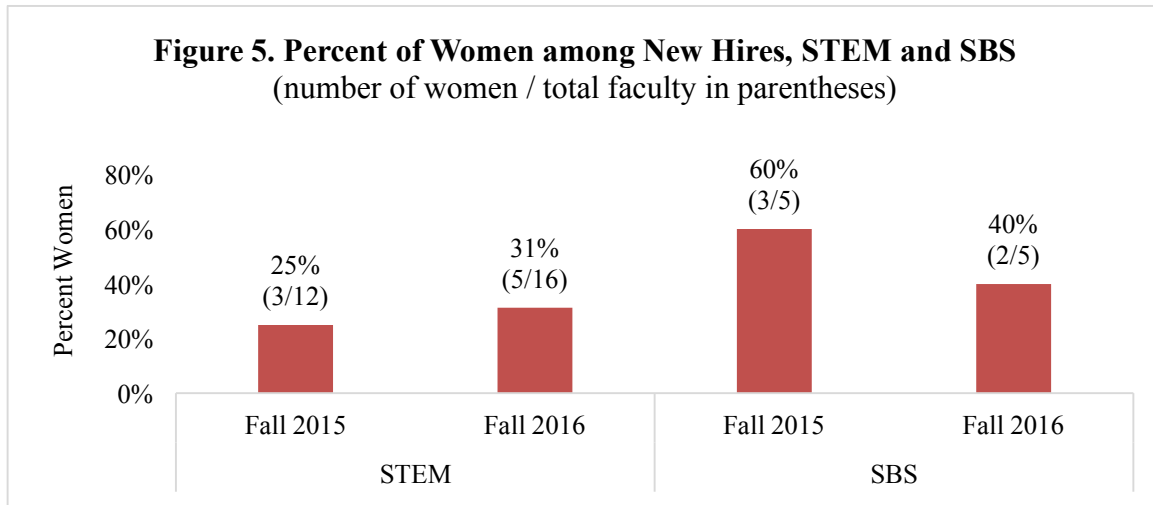


As shown in Figure 4, the overall gender balance in SBS is more equal than in STEM, with male tenured faculty comprising 32% of the total faculty and women full professors reaching 35% of the total tenure/tenure-track faculty in SBS.



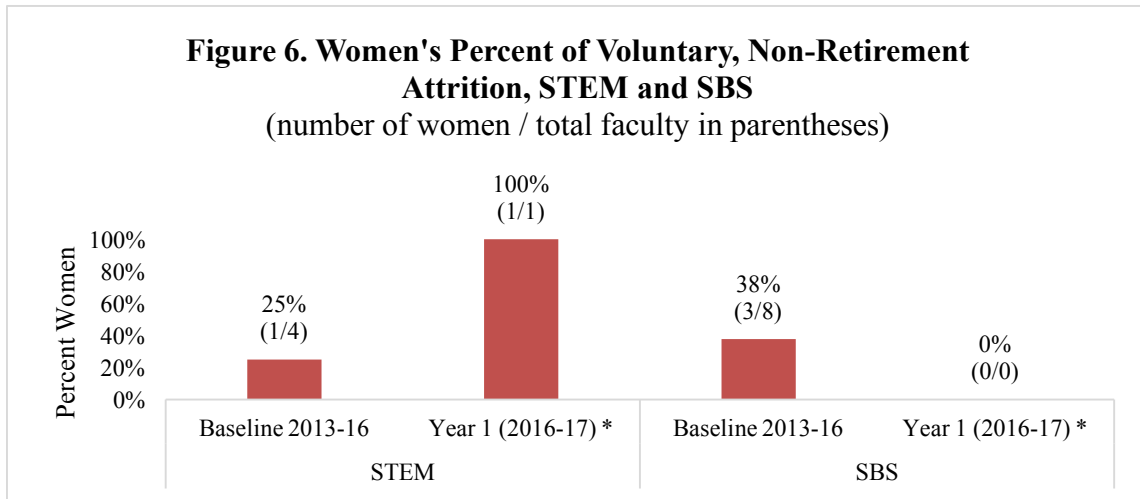
4.2 Recruitment of Women STEM and SBS Faculty

In Year 1 of the grant, 16 faculty were hired in STEM and 5 in SBS departments. In STEM, women represented 31% of new hires (Figure 5), a slightly positive increase from baseline (academic years 2013-2016) in which women comprised 25% of faculty hires. Among SBS hires, two women were hired in grant Year 1 (40%), which is lower than the baseline of 60%. However, given that small numbers are likely to fluctuate over time, these Year 1 data should be interpreted cautiously.



4. 3 Retention of Women STEM and SBS Faculty

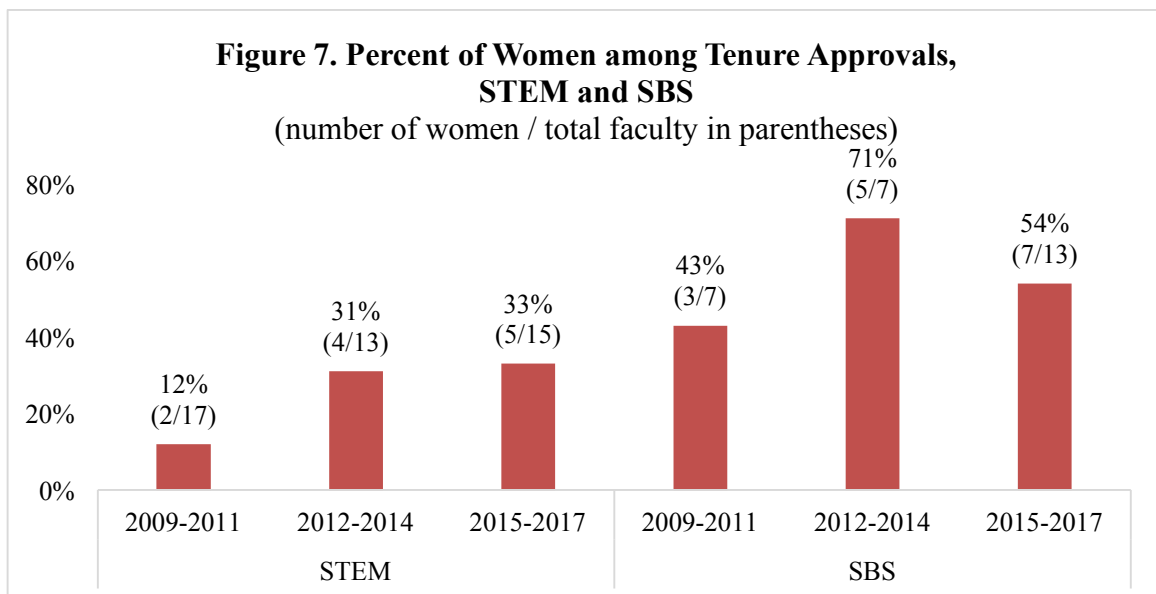
As shown in Figure 6, one STEM female faculty member left the university in Year 1 (other than through retirement), and one in the previous three years, as opposed to three men who departed. Two of the three men who left were Full Professors and one Associate Professor. On the other hand, both women who left were Assistant Professors. In SBS, three female and five male faculty left in the three years before the start of the grant. Six of the SBS faculty who left during the baseline were Assistant Professors, and two were Full Professors (one woman and one man, data not shown). Taken as a whole, data suggest that most faculty attrition occurs at the rank of Assistant Professor, and more so for women faculty (4 out of 5). It is unclear whether Assistant Professors are leaving in anticipation of a negative tenure decision or whether they found opportunities at other institutions that for other reasons pulled them away from UMass Lowell.



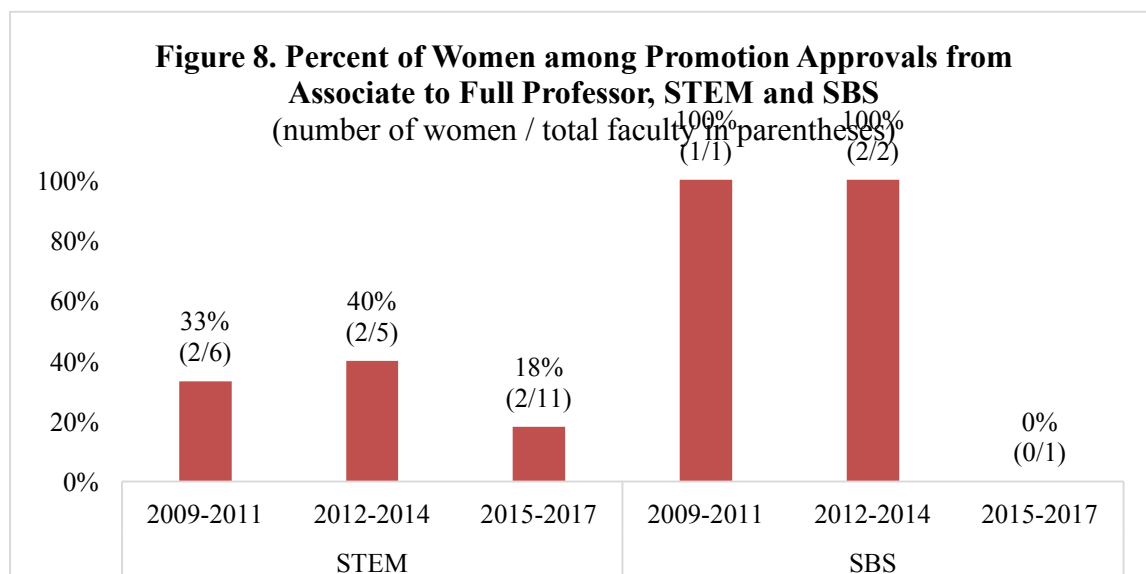
* Up to March 2017

4.4 Advancement of Women STEM and SBS Faculty

At the start of the ADVANCE program (which encompasses 2015-17 in Figure 7), 15 faculty in STEM fields and 13 in SBS fields received tenure. During these years, no faculty were denied tenure. In 2012-2014 there were two denials in STEM and one in SBS and in 2009-2011, two were denied in STEM and four in SBS (data not shown). Women comprised 33% of STEM tenure approvals from 2015-17, similar to the previous period. On the other hand, 54% of SBS tenure approvals during 2015-17 were for women, down from 71% in the previous period. Although once again, given the small numbers, these findings should be interpreted cautiously.



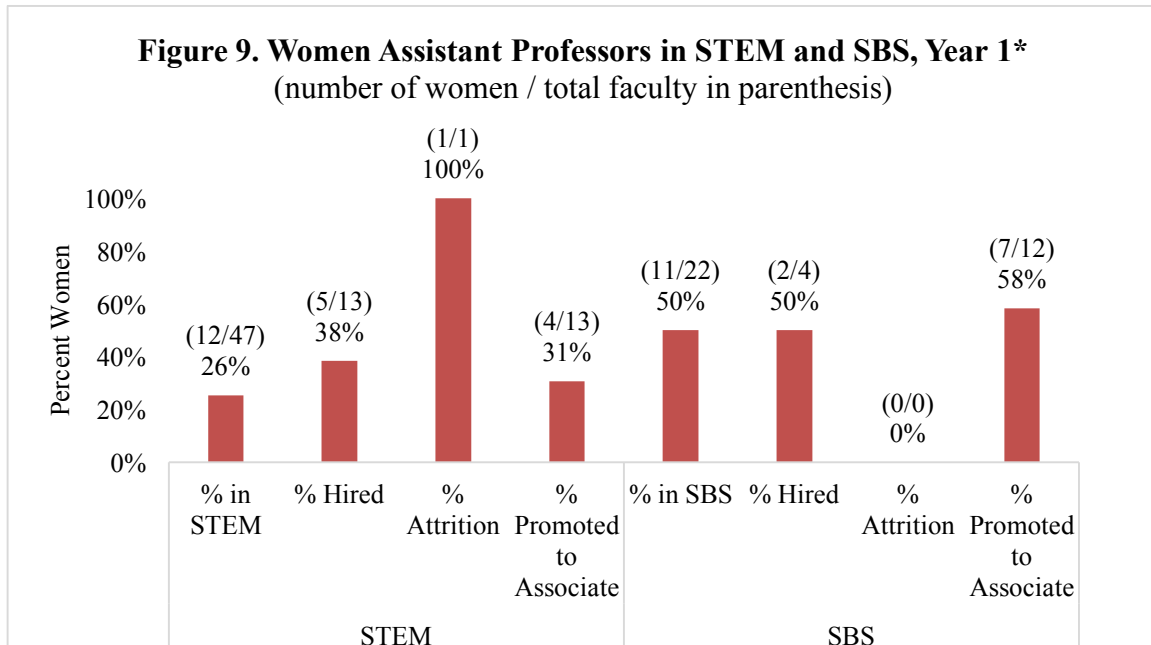
Only two out of eleven (18%) faculty members promoted from Associate to Full Professor in STEM from 2015-17 were women, while in the previous periods the proportion of approvals for women surpassed 30% (Figure 8). In SBS, the sole promotion from 2015-17 was for a male faculty member, following previous periods where only women were promoted (three in total in 2009-2014). Again, numbers are small and should be interpreted accordingly.



4.5 Summary Across Year 1 Indicators

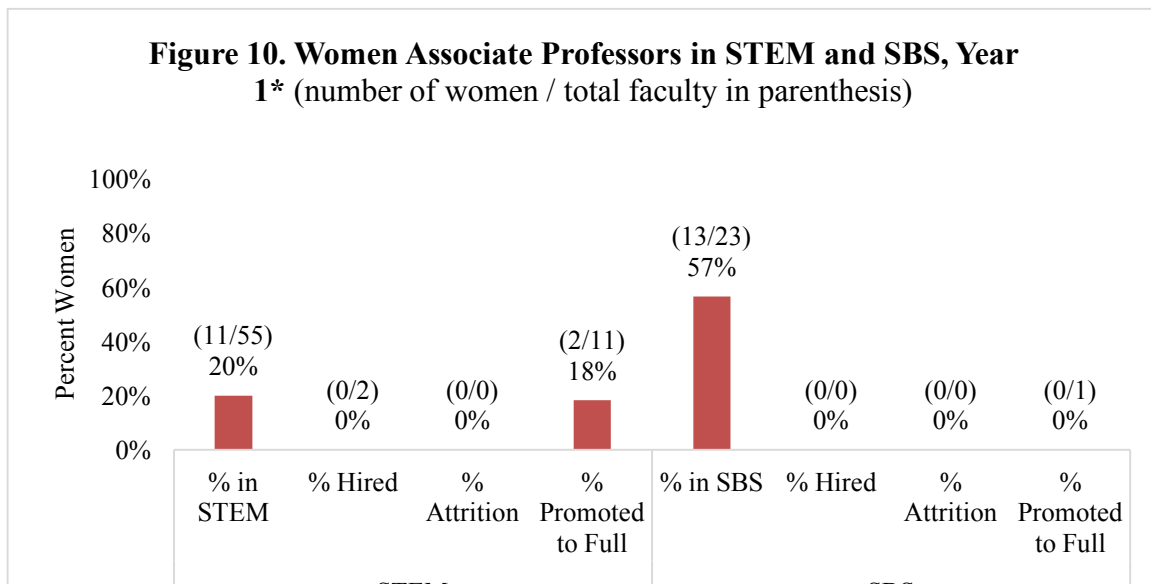
A summary of the gender composition, percent hired, percent attrition, and percent of women tenured/promoted by rank in STEM and SBS during the grant's first year is presented in Figures 9-11.

At the Assistant Professor rank (Figure 9), the percent of women hired in STEM was slightly higher than their representation, a positive sign that if Year 1 hiring trends continue, the percent of women Assistant Professors in STEM will increase (all else being equal). In SBS, the percent of women hired in Year 1 is level with their representation (already at parity with men) and women have been promoted to Associate level more than men (58%). However, given the very small numbers involved, data from additional years are needed to draw substantive conclusions.



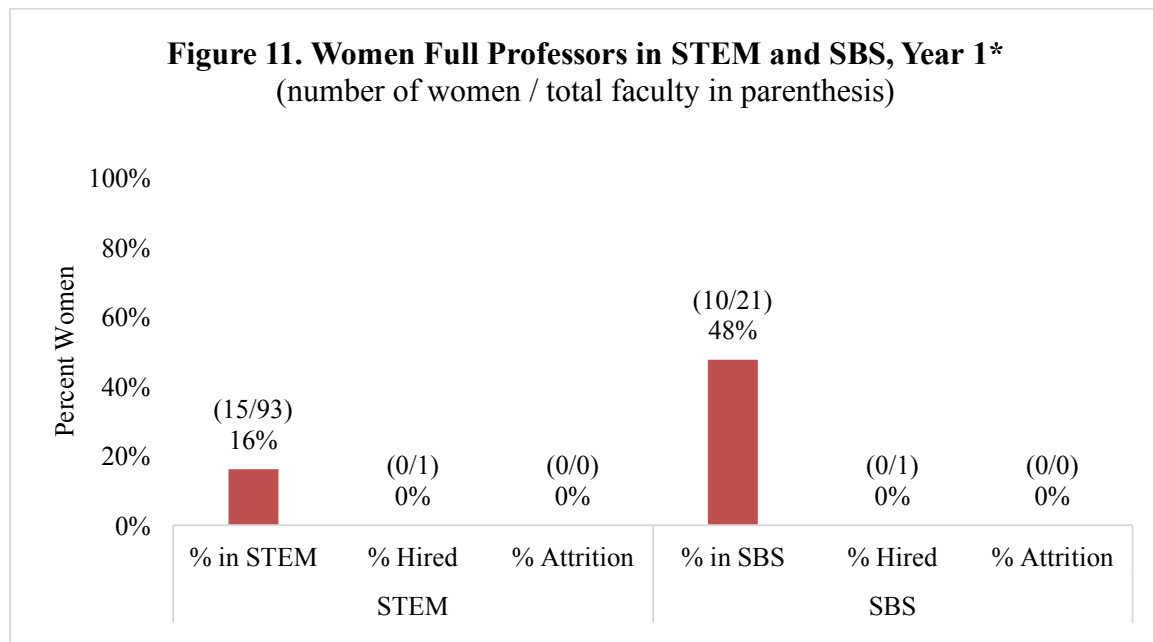
* % in Field and % New Hires are for Fall 2016. % Attrition is for AY2016-17 (partial up to March). % Promoted is for years 2015-17.

At the rank of Associate Professor, during the grant's first year, none of the two STEM Associate Professors hired were women and only two of the eleven STEM faculty promoted to Full Professor were women (Figure 10). In SBS, where women comprised 57% of Associate Professors, there were neither hires nor voluntary leaves, and only one promotion to Full Professor, which was achieved by a male Associate Professor.



* % in Field and % New Hires are for Fall 2016. % Attrition is for AY2016-17 (partial up to March). % Promoted is for years 2015-17.

At the rank of Full Professor, there was very little movement during Year 1, with no attrition. One faculty member was hired at the rank of Full Professor in STEM and one in SBS; in both cases these hires were men (Figure 11).



* % in Field and % New Hires are for Fall 2016. % Attrition is for AY2016-17 (partial up to March). % Promoted is for years 2015-17.

Continued monitoring of gender equity in faculty composition, hires, attrition, and tenure and promotion will allow the university to determine where strengths and challenges lie and hopefully inform efforts to improve diversity and equity for its faculty as a whole.

5. FINDINGS FROM YEAR 1 ACTIVITIES

5.1 Goal 1: Disrupt Microaggressions

Grant activities proposed to address Goal 1 include:

- **Survey-feedback cycles** to enable departments and colleges to raise awareness and also to help them set and track progress toward equity goals
- **Information campaign** to raise awareness of subtle biases that affect women in STEM
- **Equity Allies/Bystander Training for faculty** to promote skills to address subtle bias and build broad-based support for reducing bias at interpersonal and institutional levels
- **Equity Allies Training for Chairs** that includes leadership skills for addressing subtle biases

5.1.1 Survey Feedback and Department Equity Plans

To facilitate increased awareness of microaggressions and leverage this increased awareness into departmental goals, WAVES proposed to provide survey feedback to units, which they can then use to set departmental equity goals. In Year 1, the WAVES team presented findings from the Fall 2015 SGBI Survey and other information about the WAVES program at the December 2016 College of Engineering Retreat.

A post-presentation survey was developed by the internal evaluation team and distributed to participants at the retreat. The survey contained three open-ended questions:

1. What do you find interesting in the data presented today?
2. What, if anything, is your department already doing to address the issues you see in this data?
3. What ideas do you have for addressing representation of women and people from underrepresented groups among your faculty department?

A summary of findings from the internal evaluation team was provided to WAVES and to the external evaluator (Appendix A). Themes from the respondents' answers identified by the internal evaluation team and highlighted in their report include:

- Desire for revised promotion and tenure process with transparent data
- Need for greater support for and awareness of maternity leave policies/procedures and childcare
- Lack of push, or organization, from leadership positions regarding clear mandates and fair policy implementations
- Need for mentors, collaboration, and inclusiveness
- Importance of examining the hiring process

In addition, many participants questioned the analysis or validity of the data (i.e., "no confidence intervals," "unclear data," "not up to date"). And while many participants expressed positive comments about the need for increasing the representation of women and people from underrepresented groups, several comments could be interpreted as quite negative about the subject matter (i.e., "This is PC at its worst!" and "You are wasting your time").

One stakeholder mentioned that despite pushback, the presence of WAVES at the retreat sent an important message of the Dean's support for the grant:

"WAVES came to the College of Engineering retreat and every faculty from Engineering has to be there. WAVES had an hour of their time. Providing that time at the retreat is a signal that the Dean considers the topic to be important. It was very visible through that event and while it's natural that not everyone bought in, faculty who were open to it were able to learn."

WAVES has been communicating with the Deans from the College of Sciences and the College of Engineering to identify one to two departments from each college to initiate Department Equity Plans starting Fall 2017.

In interviews, Chairs and Deans expressed great interest in learning from data and from other institutions about best practices, as these representative quotes suggest:

“The type of data I would love to see is how we compare as an institution to similar sized colleges and departments. And to learn how those that are doing better than us are achieving those results.”

“I am interested in learning what other places have done that maybe we can do as an institution. A list of best practices of things that have been particularly helpful at other institutions.”

“Learning about our own department and college directly from data is the key to changing the things that aren’t working. We need to know what we should be tracking, and how we compare to others in the college. Having data at our fingertips will drive the process toward greater gender equity and for all types of equity.”

Recommendations:

- Include departments beyond those in the College of Science and the College of Engineering (particularly the Social Sciences) starting with the next round of department equity plans.
- Consider other institutional data (in addition to the SGBI), which can be provided to (or easily accessed by) departments, to be used in goal setting and measuring equity (applicant pool data, “Toolkit” indicator data, etc.).
- Contact other ADVANCE institutions that have successfully worked with departments to increase equity (for example, Montana State University’s Departmental Self-Studies and West Virginia University’s Department Dialogues)

5.1.2 Information Campaign

The Making WAVES team utilized several platforms for raising awareness of the grant and of the biases that affect women in STEM. Some of the events and information campaigns that took place during Year 1 included:

- Presentations at the Deans Council and individual meetings with every Dean
- Presentations and meetings with key campus partners such as the Faculty Development Council, Faculty Senate, and Massachusetts Society of Professors Faculty Union
- Launching Making WAVES website
- Microaggressions Blog roll out (#ItoomSTEM)

- Making WAVES Kick-off Event, with opening remarks from the Chancellor and Keynote by Dr. Pamela Conrad of NASA
- Provost Speaker Series featuring Dr. Stephanie Goodwin and Dr. Lisako McKyer
- 50/50 Lecture Series (also see Section 5.2.1)

Evidence of Impact: Event Evaluation Forms

Dr. Lohmeier and the CPE team developed, distributed, and analyzed the post-event evaluation forms for the following speaker events:

50/50 Lectures:

- November 2016: Dr. Holly Yanco, UMass Lowell Computer Science Department, “Sci-Fi to HRI: Developing the Robots of Tomorrow”
- February 2017: Dr. Robert Langer, MIT, “Biomaterials and Biotechnology”

Provost Speaker Series:

- February 2017: Dr. Stephanie Goodwin, Wright State University, “Speaking Up is Hard to Do: Bystander Intervention in Everyday Bias”
- April 2017: Dr. Lisako McKyer, Texas A&M University, “Implicit Bias in the Academy”

Summaries of the post-event evaluation forms were provided to the WAVES team and the external evaluator (Appendix A). Key impacts are summarized below.

50/50 Lectures

Participants provided very favorable feedback in general about the 50/50 Lectures, with all participants except one agreeing they found the technical portion of the speaker’s talk informative. At both lectures the majority (88% and 86%) “agreed” or “strongly agreed” they learned something that will help them with their career. Attendees of Dr. Yanco’s lecture were more likely to “agree” or “strongly agree” the career issues highlighted in the event raised their awareness of experiences of women in STEM (80% vs. 39%), which may be due to the speaker’s own gender. Women comprised 40% of attendees at the Dr. Yanco lecture and 51% at the Dr. Langer lecture.

Provost Speaker Series

Participants at both Provost Speaker Series events reported their knowledge about implicit biases and/or intervention strategies increased as a result of attending the event. For example, almost all participants reported increased knowledge about implicit bias (83% at Dr. McKyer’s event and 90% at Dr. Goodwin’s event). Of those who attended Dr. Goodwin’s event, more than 90% “agreed” or “strongly agreed” they became more knowledgeable about how to intervene when implicit bias influences colleagues’ decision-making and 83% “agreed” or “strongly agreed” they

felt more confident in using one or more new strategies to intervene when a situation involving implicit bias occurs. At both events, most participants also expressed hope that such events will reduce bias at the university (90% at Dr. McKyer's event and 83% at Dr. Goodwin's event). At both Provost Speaker Series events, the majority of participants were women (66% at Dr. McKyer's and 73% Dr. Goodwin's).

Evidence of Impact: Interviews

Those interviewed pointed to the importance of the information campaign, and in particular the public events and speakers, as essential for raising awareness of concepts such as microaggressions and increasing the visibility of WAVES, as these representative quotes illustrate:

"Having some visible speakers and raising awareness on campus was essential for laying the groundwork for the rest of the grant. While some of this work may seem less visible, it is essential for propelling the project forward. WAVES needed to raise awareness first."

"The visible campus events, such as Stephanie Goodwin's visit, seem to raise general awareness about concepts like microaggressions. Having the Provost and Deans there added visibility. Campus literacy around these topics is improving, I think, and builds awareness."

"WAVES has traction. There have been a number of workshops and speakers and people know the 50/50 Lectures. They have provided increased visibility of WAVES and of the need to improve gender equity."

Stakeholders also noted that the presence of the Chancellor and Provost at these events helped raise the visibility of the topics and of WAVES, for example:

"The Chancellor and the Provost were at the 50/50 Speakers event. In my view, that speaks volumes about how important this is to the leadership. Actually a lot of members of the executive cabinet were there."

While stakeholders supported the use of speakers, events, and presentations for relaying information and raising awareness of microaggressions, some stakeholders were concerned about the microaggressions blog ("It00amSTEM"). Concerns expressed were about the purpose of the blog and the potential ramifications of having a digital record of microaggressions that may have occurred at the university on the university website.

Recommendations:

- The Fall 2017 SGBI Survey may provide additional avenues to increase campus-wide awareness of biases and microaggressions. When analysis is complete, work with institutional leaders to disseminate the findings to the campus community and provide an opportunity for community discussion of the findings.
- Additional information about the #IttooamSTEM blog should be provided on the website. As of the date of this report, there was no description of the blog's purpose, no definition of microaggressions, nor clarity on who is invited to post (for example, faculty, students, the UMass Lowell community and/or those outside of UML, etc.)

5.1.3 Bystander Training to develop active Equity Leaders

During Year 1, the team initiated several activities to lay the groundwork for Bystander Training. A key component of the preparation was conducting interviews with faculty (12 total) about bystander behaviors and potential barriers to action. Findings from the interviews are being used to inform the training and will likely add validity to the training since the material was based, at least in part, on the experiences of UMass faculty.

WAVES also made progress in identifying Equity Leaders who will begin work in the 2017-18 academic year. Deans nominated faculty who were well respected by their peers and who were committed to the goals of WAVES and the Bystander Training in particular. WAVES sought to identify six faculty for the first cohort of Equity Leaders (three from the College of Sciences and three from the College of Engineering). The first cohort began meeting in Fall 2017. The current plan is to add two to three additional faculty in the second year also from the Colleges of Sciences and Engineering. The first cohort will be meeting in the fall to develop the training which they plan to roll out in Spring 2018.

Those interviewed emphasized the importance of bystander training, for example:

“Helping people figure out how to identify inequities and microaggressions and then providing tools for what they can do to intervene is essential. People need a tool set. First they need to see it, because that's the first step. But, if you feel confident that you're seeing something that's not right, you need the tools or some way to intervene in the right way. It's one thing to see it and then to walk back to your office and go, geez, that wasn't right. It's another thing to do something about it and help change the culture of the place. You don't change the culture until you intervene. You're making a statement on behalf of the institution that this matters and I've noticed and I want to make a change.”

Recommendations:

- The Bystander Training is a central activity and should be launched as soon as possible so that its impacts can be evaluated prior to the NSF third year site visit (which could occur as early as Fall 2018)
- Expand the Equity Leaders into other colleges, especially the College of Fine Arts, Humanities and Social Sciences (which includes several NSF-funded disciplines)
- Reach out to other ADVANCE institutions (if the team has not already done so) that are also incorporating Bystander Training in their activities (for example, Florida International University and the University of New Hampshire) and Equity Leaders (UC Irvine)

5.2 Goal 2: Provide alternative support mechanisms for faculty

The activities proposed to address the second goal are designed to promote collegial exchange and expand women's access to professional and personal support networks. The two interventions include:

- Expansion of the 50/50 Lecture series
- IDEA (Inter-Disciplinary Exchange and Advancement) Communities

5.2.1 Expansion of the 50/50 Lecture Series

The 50/50 Lecture series predates the UML ADVANCE-IT grant and consist of lectures given by notable scientists and engineers in which half of the lecture addresses their research interests and the other half their career path. As discussed in Section 5.1.2, the 50/50 Lecture series has helped raise awareness of WAVES and of microaggressions and biases, contributing to the Informational Campaign. As part of the 50/50 Lecture series, a UML faculty hosts the researcher for a full day on campus allowing opportunities to develop collaborations, seek mentoring, discuss research ideas, and expand networks. To build on the current lecture series, WAVES increases the opportunities for networking, mentoring, and collaboration by providing funding for two follow-up visits to the speaker's institution and/or a conference where the speaker and host can meet.

During the first year of the grant, two STEM women hosted 50/50 Lecturers. The team has found that interest in hosting has been lower than anticipated, which may be due to lack of awareness of the opportunity or lack of awareness of the likely positive impacts on networks, mentoring, and/or collaboration.

Recommendations:

- Add information to the WAVES website about the increased opportunities for networking, mentoring, and collaborating available for hosts. As of the date

of this report, there was no information about these benefits on the website (nor was the list of 50/50 speakers up to date)

- Continue to advertise opportunities directly to faculty and to departments beyond STEM (especially the Social Sciences)
- Proceed with plans to assess longer-term impacts on 50/50 Lecture hosts

5.2.2 IDEA Communities

IDEA Communities seek to bring together faculty interested in meeting around a common topical area and supporting individual scholarly agendas to increase faculty productivity and mentoring while also reducing isolation. Efforts in Year 1 centered on assessing current mentoring initiatives on campus and discussing possible topics. The initiative has not yet been launched, but the arrival of the new Vice Provost for Faculty Success, Dr. Beth Mitchneck, provides opportunities to coordinate mentoring initiatives and collaborate. WAVES agrees that partnering with existing efforts, and new efforts that come out of the Office of the Vice Provost for Faculty Success, is a fruitful direction that allows for maximum impact and long-term sustainability.

Recommendation:

- Collaborate and partner with other mentoring initiatives on campus to align efforts, especially with initiatives to come out of the Office of the Vice Provost for Faculty Success

5.3 Goal 3: Promote Equity and Accountability

The third goal seeks to address aspects of organizational context to decrease ambiguity around standards and to increase accountability around equity goals.

The two interventions to address Goal 3 include:

- Foggy Climate Initiative
- WAVES Accountability Initiative

5.3.1 Foggy Climate Initiative

The objective of the Foggy Climate Initiative is to increase transparency in evaluations by establishing detailed decision-making procedures for high stakes decisions and to analyze and promote equity by gender around service assignments.

Transparency in Evaluations

Over the past few years, some Personnel Committees at the university have adopted a set of procedural guidelines designed to improve the participation of all committee members in the decision-making process and ensure adherence to the promotion

guidelines outlined in the union contract. Increasing use of the guidelines across all departments and for all decisions is likely to improve transparency. To understand the prevalence of the use of the guidelines, WAVES surveyed Chairs in August 2017 to learn the extent to which departments are aware of and already using the protocol guidelines. Of the 32 departments, 25 completed the short 5-question survey (78%). Of those who completed the survey, 68% are using the guidelines in some form (an adapted version, in a subset of personnel decisions, or actively implementing in all departmental personnel decisions). WAVES seeks to expand the impact of the new protocols by encouraging departments to utilize them and working with other stakeholders such as Deans to encourage departmental use.

In interviews, stakeholders expressed differing levels of awareness of the guidelines. Some Chairs learned about the guidelines from their Dean (who suggested departments follow them) and another Chair was unaware of the guidelines before receiving the survey from ADVANCE. One stakeholder mentioned that the process of revision and discussion of the new guidelines was valuable, explaining: “The P and T guidelines were revised and don’t look that much different on paper but everyone felt the process was open and fair. Engaging people in the process was beneficial and helped build consensus around the guidelines and why they are important.”

Service Equity

The university has recently implemented Digital Measures as a platform for storing and exporting data on faculty teaching, service, research, and publications. To increase transparency and service equity, WAVES is working to refine the service template and plans to conduct a pilot of the new template with the School of Nursing before it is rolled out more generally.

Recommendation:

- Proceed with plans to help departments and colleges collect and interpret data regarding transparency in evaluations and service equity; these data can be used to inform their Department Equity Plans and participation in the SEA Change Program (Section 5.3.2)

5.3.2 WAVES Accountability Initiative

The WAVES Accountability Initiative is modeled after the Athena SWAN program and will dovetail with the university’s participation in a pilot of the national STEM Equality Achievement (SEA) Change Program to achieve “Bronze-level” recognition. At the time of the interviews, the details were still being discussed, but the consensus at that time was that departments would self-select to assess their areas of strength and weakness and work to actively improve upon their weaknesses. WAVES could be a resource and an avenue to leverage in helping departments change their climates. Participating in the SEA Change Program pilot should dovetail with the Department Equity Plans.

Recommendation:

- Coordinate with SEA Change efforts, but ADVANCE efforts should be distinct and not dependent on the roll-out of the SEA Change Program

5.4 Social Science Research

The purposes of the social science research are to: (1) provide new nuanced and more ecologically valid insights into microaggressions and their consequences; (2) add to the body of literature on understanding how gendered microaggressions are experienced in the context of intersectional racial identities; (3) develop a typology of factors that hinder (or facilitate) confronting microaggressions and (4) answer the call for additional research on effective intervention strategies.

Three related studies, grounded in daily diary methodology, were proposed:

Study 1: Understanding microaggressions: Incidence, impact and intersectionality

Employs daily diaries to track occurrences of microaggressions (witnessed and experienced) and their relationships with job satisfaction and well-being

Study 2: Barriers and facilitators of action in response to microaggressions

Uses daily diary methodology to identify barriers to and facilitators of intervention after experiencing or witnessing microaggressions across two groups—those who have participated in bystander training and those who have not

Study 3: Impact of daily diaries on attitudes toward microaggressions

An experimental study that will provide new insights into the efficacy of the daily diary data to influence attitudes about microaggressions

During Year 1, the team drafted their baseline instrument, finalized the programming, and pilot tested the platform. The AWIS October 2017 conference was the kickoff of national data collection efforts for Study 1. The first 160 participants will be eligible to receive a gift card of up to \$50 (amount to be determined by how many of the daily diary entries they complete).

Recommendation:

- Connect with the ADVANCE-Partnership team at the University of New Hampshire, who will also be collecting data on the occurrence of microaggressions and bystander intervention

5.5 Other Key Findings

1. Messaging

Stakeholder comments suggest that messaging should be more consistent and that a short “elevator pitch” highlighting the primary message would be beneficial. Some illustrative comments include:

“The message is sometimes tailored to the audience. But it’s critical to have one message about what their goal is and stay to those goals. Stay mission central.”

“I think there are multiple messages. I am not sure there is consensus about the primary message yet, or what the key goals are.”

“I hear people talking about goals, such as faculty retention or recruiting underrepresented students, that they think are the WAVES goals. I am not sure the campus has a clear picture yet of what the WAVES goals are and assume that anything that is related to diversity, or STEM diversity, is a goal of WAVES.”

“I guess I am not sure what the main goals are. I think the goal of WAVES is to make sure that our female faculty do not feel like they are not represented or heard enough, or that there are no HR conflicts within the department.”

WAVES should also ensure that its messaging is inclusive of the entire campus, emphasizing that the goal is to achieve institutional transformation. Stakeholders felt that the current message received is that the grant is focused on women in STEM, for example:

“I’m not in a STEM department and I think most of my colleagues would see WAVES and think, ‘Oh, that’s just about the women in STEM.’ I don’t think they see it as a larger transformational change initiative.”

“It it’s an ADVANCE grant, it’s focused on STEM. That’s my understanding. It’s not clear whether any other colleges are part of this.”

“One challenge I see is buy-in. A lot of people don’t feel included.”

“People see this effort as a STEM effort and not as a campus-wide transformation.”

An essential component of messaging is the perception of support from upper administration. Many stakeholders mentioned the support from the top administrators is strong and visible, as this representative quote illustrates:

“I think the support from the upper administration and the importance of WAVES is absolutely visible, it’s very genuine, and it’s very well done.”

However, others interviewed would like to see WAVES mentioned more often at public events, for example:

“I don’t think WAVES was mentioned in the first town hall. While those at the top are strong supporters, it’s essential WAVES is always mentioned at public events.”

2. Internal Advisory Board

The Internal Advisory Board is comprised of the Equity Climate Committee, which is a committee under the pillar of the Strategic 2020 Committee on Global Engagement and Inclusive Climate. The structure was based on a recommendation from the Chancellor that the Strategic 2020 Committee serve as the Internal Advisory Board, thus providing an avenue for Making WAVES goals to be woven into the new strategic plan. The Internal Advisory Board’s purpose thus far has been largely to provide input and to be ambassadors for the program to the wider university and the 2020 Strategic Plan. With respect to ADVANCE specifically, the IAB members reported serving as ambassadors for the program, provided feedback on the events, and providing suggestions about the analysis and eventual dissemination of the SGBI data.

3. SGBI (Subtle Gender Bias Index) Survey

The SGBI, developed through an ADVANCE-PAID grant was administered to UMass Lowell faculty in the summer of 2017 (and was administered in 2015, prior to the funding of the IT grant). Dr. Lohmeier and her staff are conducting analyses of the data. Preliminary findings include:

- Female respondents felt more sexual discrimination than male respondents
- Females have lower opinions than male faculty of the social and work-related experiences of female faculty (for example, that female faculty have advocates and mentors, that they are ignored when they speak up at meetings, etc.)
- Associate Professors with tenure felt more devalued than other faculty subgroups
- Female faculty felt more devalued overall than male faculty and more devalued in regular meetings, special decision-making meetings, and big public events
- Gender intersects with other identities in experiences of feeling valued. Female faculty felt more devalued at work because of age, gender, and

- parental status. Female faculty felt less devalued because of national origin and less devalued because of race.
- A fair number of respondents did not provide demographic data (i.e., did not answer or selected the “prefer not to answer” option). Twenty-two percent did not provide their gender, 32% did not provide their race, 25% did not provide their college, 23% did not provide the number of years employed at UML nor their current position at UML.

When the findings are available, they can be distributed via the Survey Feedback Cycles, used to support Department Equity Plans, and disseminated widely to the campus to help raise awareness of biases and inform efforts to disrupt microaggressions. Data from the 2017 survey can also be compared to the 2015 survey as a means of tracking any changes in collective or group-specific experiences and perceptions.

4. Institutional Data

Obtaining the institutional data for the “toolkit” was a challenge in Year 1, as data provided from multiple sources were sometimes inconsistent. The team has worked with their campus partners providing data to clarify the needs, scope, and consistency of data collection efforts. Yet some data (for example, promotion and tenure data) was compiled by hand from records and it is unclear whether a consistent effort by the university to collect and examine this data independent of ADVANCE will be undertaken.

6. CONCLUSION AND RECOMMENDATIONS

The University of Massachusetts Lowell WAVES team has constructed a solid framework in Year 1 on which to build. The Information Campaign has promoted the visibility of WAVES and awareness of the concept of microaggressions. Much of the work in Year 1 was focused on building the informational and social infrastructure to support the development of key initiatives through discussions with campus partners, administrators, and stakeholders.

Data from interviews conducted by the external evaluator and the review of internal evaluation documents suggest several significant areas of strength, including: a well-respected team with strong theoretical and empirical knowledge of the literature on gender, work, and bias; well-integrated and experienced internal evaluation team to guide program assessment; launching of the first Social Science study; buy-in and support from upper administration; and identification of the first cohort of Equity Leaders.

Key areas of challenge experienced in Year 1 included the need to develop a streamlined mechanism for collecting (and maintaining consistency of) institutional data across units and ensuring that programming and messaging is consistent and inclusive beyond STEM.

A strength, but also a potential challenge, is that some of WAVES' key structures and functions are embedded in larger university efforts (SEA Change Program and Strategic 2020 Committee). The integration of WAVES goals within these larger campus efforts can help propel them forward in meaningful ways and may also support their eventual sustainability. A potential challenge, however, will be ensuring that the needs and goals of WAVES will not be subordinated within these larger, much broader efforts. Moreover, it is possible that the timelines of these broader efforts may not align with WAVES efforts, potentially slowing down the implementation of WAVES' goals.

The following recommendations are intended to build on the accomplishments from Year 1, assist with the implementation of program initiatives in Year 2, and support the achievement of the goals of Making WAVES. Key recommendations (grouped thematically) include:

Prioritize Activities for Year 2

- Key activities that are central to the ability of the grant to achieve institutional transformation should be prioritized for Year 2. Bystander Training and Departmental Equity Plans, for example, are likely to have greater institutional impacts than some of the other activities (such as the 50/50 Lectures). Time and efforts should be prioritized accordingly.
- Key activities need to be fully launched in Year 2 so that impacts can be assessed before the NSF third year site visit (which could come as early as Fall 2018)

Messaging and Inclusivity

- All NSF-funded disciplines (for example, the Social Sciences) need to be included in activities. Extend activities, where possible, to additional disciplines beyond STEM and SBS to promote inclusivity and support institutional transformation.
- Ensure messaging is consistent and develop an “elevator pitch” succinctly summarizing the key goals of WAVES and the many ways the institution as a whole will benefit from WAVES.

Strategic Partnerships

- Think strategically about where WAVES initiatives should “land” at the end of the grant and partner with these offices now to develop and implement initiatives to ensure communication and buy-in.
- Related to the point above, discuss whether WAVES would benefit from an additional internal board comprised of key campus partners (for example,

HR, Vice Provost for Faculty Success, Deans) who are essential for sustaining program initiatives to obtain their assistance during the planning and implementation stages and increase their investment in sustainability. Other ADVANCE institutions have found this structure effective. Having the Provost chair the internal advisory board has also been an effective practice at other ADVANCE institutions.

- Collaborate and partner with other mentoring initiatives on campus to align efforts; establish clarity with respect to roles and responsibilities.
- Chairs are critical for shaping departmental climate, transparency in policies and procedures, and equity. Chairs are involved directly and indirectly in many of the initiatives and should continue to be on-boarded and engaged as active partners whose feedback and input are sought regularly.

Other

- Reach out to other ADVANCE institutions with similar interventions (Bystander Training, Equity Allies, Department Equity Plans, Department Dialogues) to share resources and best practices.
- Provide as much department and college-level data to Deans and Chairs as possible to engage them in discussions of ways to improve equity and transparency.
- The university should invest in centralized collection for critical equity-related data such as promotion and tenure data to ensure the university can adequately monitor these metrics.
- When available, disseminate key findings from the 2017 SGBI Survey to the entire campus and invite campus-wide discussion of the findings.

In conclusion, WAVES has made meaningful progress in Year 1, but much work lies ahead. The informational campaign has laid the groundwork to support the grant goals and the key program initiatives should be prioritized and launched during Year 2 so that their impacts can be evaluated to prepare for the NSF third year site visit and to facilitate the eventual institutionalization of successful initiatives. The team has the expertise and institutional support to make this happen. WAVES is well-positioned to help establish UMass Lowell as a national leader of institutional strategies and empirical research on reducing the prevalence and negative impacts of microaggressions that affect faculty well-being.

Appendix A: Internal Evaluation Team Summaries



Center for
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50/50 Initiative Post Event Survey Summary

November 2016

50/50 Initiative Post Event Survey Summary

Survey Participants

A 50/50 initiative post event survey was administered on November 1st, 2016.

The surveys were placed on attendees' seats prior to the presentation and were collected as attendees left the event. The purpose of the survey was explained to the participants and survey completion was voluntary. The survey contained nine questions: one included 10 sub-questions to be answered using a 5-point Likert scale; one was a "yes" or "no" question; four were open-ended questions; and three were demographic questions. The survey took approximately 5 minutes for participants to complete.

Out of thirty-six participants at the event, twenty-five (69%) completed the survey. The demographic details are provided in Table 1. Of these twenty-five participants, fifteen identified themselves as male, and ten identified themselves as female. Nine of the participants were students, four were assistant professors, four were associate professors, three were full professors, four were staff or instructor, and one was a research assistant. Nineteen participants were attending the 50/50 lecture for the first time. Six of the twenty-five respondents cited Computer Science as their field of study.

Table 1
Participant Demographics

Demographics	Participant
Gender	Male (15); Female (10)
Title	Student (n=9); Assistant Professor (n=4); Associate Professor (n=4); Full Professor (n=3); Staff/Instructor (n=4); Research Assistant (n=1)
First time attending 50/50 lecture	Yes (n=19, 76%)
Field of Study	Biology (n=3); BMEBT (n=2); Chemistry (n=1); Computer Science (n=6); Earth Science (n=1); Energy Engineering (n=1); Mechanical Engineering (n=1); Mechanical Engineering and Math (n=1); Physic (n=1); Robotics (n=3); Not to Respond (n=4); N/A (n=1)

Question 1: Please rate the following on your level of agreement

Question 1 asked participants to rate their level of agreement for various aspects of the talk. The frequency distributions are presented in Figure 1. The mean values indicate overall agreement with the ten questions in the survey (see Table 2). Specifically, all participants ‘agreed’ or ‘strongly agreed’ that they found the technical portion of the talk informative ($M = 4.88$, and $SD = 0.33$). The frequency distribution of answers and the descriptive statistics for these variables are also presented in Table 2.

Figure 1
Descriptive Statistics for the ten sub-questions in question 1

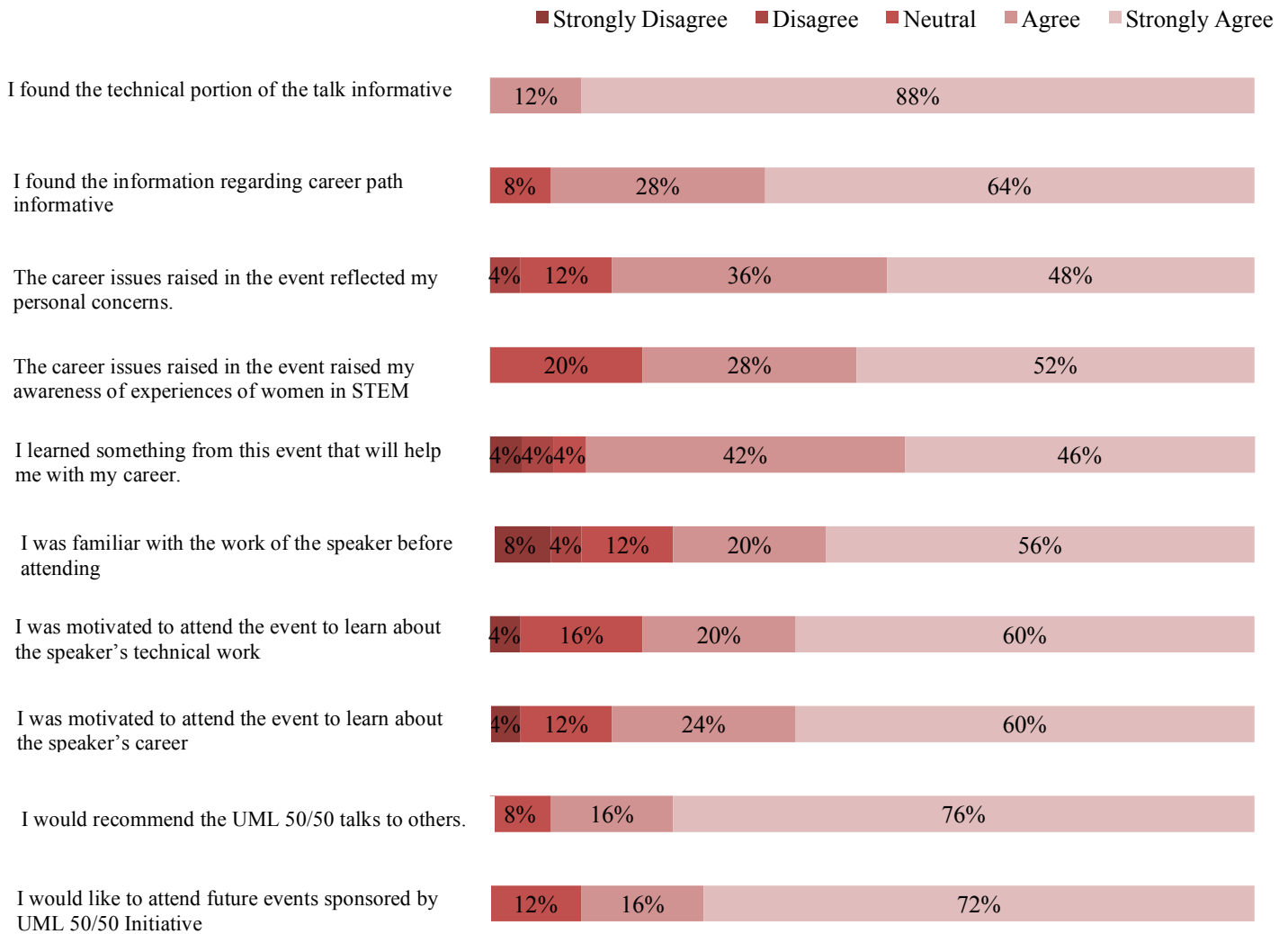


Table 2

Descriptive Statistics and Frequency Distribution for following ten questions

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	N	Mean	S.D.
I found the technical portion of the talk informative	0 (0%)	0 (0%)	0 (0%)	3 (12%)	22 (88%)	25	4.88	0.33
I found the information regarding career path informative	0 (0%)	0 (0%)	2 (8%)	7 (28%)	16 (64%)	25	4.56	0.65
The career issues raised in the event reflected my personal concerns.	0 (0%)	1 (4%)	3 (12%)	9 (36%)	12 (48%)	25	4.28	0.84
The career issues raised in the event raised my awareness of experiences of women in STEM	0 (0%)	0 (0%)	5 (20%)	7 (28%)	13 (52%)	25	4.32	0.80
I learned something from this event that will help me with my career.	1 (4.2%)	1 (4.2%)	1 (4.2%)	10 (41.7%)	11 (45.8%)	24	4.21	1.02
I was familiar with the work of the speaker before attending	2 (8%)	1 (4%)	3 (12%)	5 (20%)	14 (56%)	25	4.12	1.27
I was motivated to attend the event to learn about the speaker's technical work	1 (4%)	0 (0%)	4 (16%)	5 (20%)	15 (60%)	25	4.32	1.03
I was motivated to attend the event to learn about the speaker's career	1 (4%)	0 (0%)	3 (12%)	6 (24%)	15 (60%)	25	4.36	0.99
I would recommend the UML 50/50 talks to others.	0 (0%)	0 (0%)	2 (8%)	4 (16%)	19 (76%)	25	4.68	0.63
I would like to attend future events sponsored by UML 50/50	0 (0%)	0 (0%)	3 (12%)	4 (16%)	18 (72%)	25	4.60	0.71

6. What was the most significant thing you learned from the event that you will apply to your work life/career?

Fourteen participants responded to this question. Four participants mentioned that the most significant thing they learned from the talk was to work for yourself and not for someone else and to “do what you love”. Two participants also mentioned that the “do it yourself” aspect was a significant takeaway from the event.

7. When you arrived at the event, what were you hoping to learn or do?

Fourteen participants responded to this question. Most of the participants (eight) said that they were hoping to learn more about the work that Professor Yanco does and to learn about robots. Two of the participants wanted to learn about interesting research because in one case, the participant was growing a research program and wanted to hear more about the research experience from Professor Yanco. One other participant “wanted to hear about the career pathways, challenges faced and how to overcome them.”

8. What would you like to see discussed or addressed at future events?

Fourteen participants responded to this question. Some of the responses shared include:

1. More about work/family balance and how to deal with hostile work environments
2. Further information on careers more generally, rather than the story
3. How we can improve the environment for worker in science & engineering
4. Career path difficulties and lessons learned
5. Civilian-police interaction through robots
6. A little more depth about their robot
7. Cross-disciplinary career paths

8. Additional comments, questions or ideas that were not addressed above but you would like to share with the 50/50 Initiative project team are welcome.

For the additional comments, some respondents reiterated that they enjoyed the series. One suggested having more visibility for the event. “I heard about this one through a professor and would not have known without him”.



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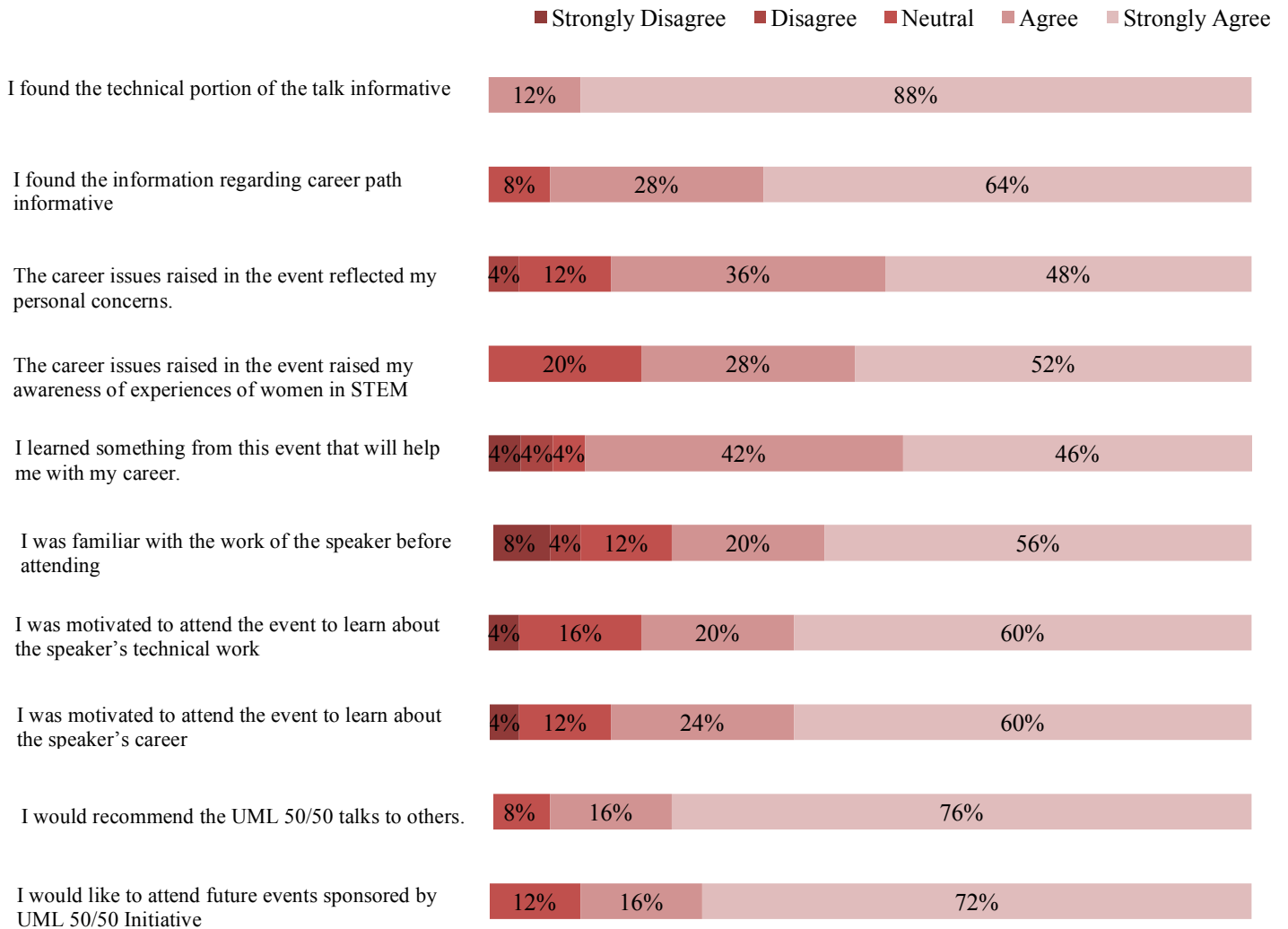


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I would like to attend future events sponsored by UML 50/50 Initiative.	0 (0%)	0 (0%)	3 (12%)	4 (16%)	18 (72%)	25	4.60	0.71

6. What was the most significant thing you learned from the event that you will apply to your work life/career?

Fourteen participants responded to this question. Four participants mentioned that the most significant thing they learned from the talk was to work for yourself and not for someone else and to “do what you love”. Two participants also mentioned that the “do it yourself” aspect was a significant takeaway from the event.

7. When you arrived at the event, what were you hoping to learn or do?

Fourteen participants responded to this question. Most of the participants (eight) said that they were hoping to learn more about the work that Professor Yanco does and to learn about robots. Two of the participants wanted to learn about interesting research because in one case, the participant was growing a research program and wanted to hear more about the research experience from Professor Yanco. One other participant “wanted to hear about the career pathways, challenges faced and how to overcome them.”

8. What would you like to see discussed or addressed at future events?

Fourteen participants responded to this question. Some of the responses shared include:

1. More about work/family balance and how to deal with hostile work environments
2. Further information on careers more generally, rather than the story
3. How we can improve the environment for worker in science & engineering
4. Career path difficulties and lessons learned
5. Civilian-police interaction through robots
6. A little more depth about their robot
7. Cross-disciplinary career paths

8. Additional comments, questions or ideas that were not addressed above but you would like to share with the 50/50 Initiative project team are welcome.

For the additional comments, some respondents reiterated that they enjoyed the series. One suggested having more visibility for the event. “I heard about this one through a professor and would not have known without him”.



Center for
Program
Evaluation

Provost Speaker Series

Dr. Stephanie Goodwin

February, 28th, 2017

CPE Briefing

NSF:ADVANCE It Grant

March 7, 2017

PREPARED BY:

Jill H. Lohmeier, Ph.D.

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Provost Speaker Series, February 28th, 2017: Dr. Stephanie Goodwin

On February 28th, 2017, Stephanie Goodwin presented her workshop titled “*Speaking Up is Hard to Do: Bystander Intervention in Everyday Bias*” to an audience of 64 individuals at the University of Massachusetts Lowell’s Emerging Technology and Innovation Center. At the conclusion of the presentation, Dr. Goodwin distributed a Bystander Intervention Workshop Survey. This survey consisted of five questions regarding individuals’ knowledge and recognition about implicit bias and intervention as well as individual confidence in utilizing strategies learned in hopes that similar efforts will reduce campus bias. There were also four open ended questions asked to gather information about concepts learned, remaining questions, recommendations, comments and observations. Below are the results of this survey.

Participants

Sixty-four people (17 men and 47 women) attended the workshop. Forty-two participants (65 % of attendees) completed the survey. The university roles for the participants are provided with frequency counts in Table 1.

Table 1
Participant Roles at UML (Some respondents have duplicate roles)

Demographics	Participant
Title	Department chair (6); Associate dean (1); Dean (3); Program or center director(2); Staff (11); Professor (3); Associate professor (5); Assistant professor (9); Adjunct professor (1); Student (2); Parent of UML student (1)

Survey Results

Question 1: Please indicate your level of agreement with the following statements regarding your participation in the workshop.

Question 1 asked participants to rate their level of agreement for four aspects of the workshop. The frequency distributions for the responses are presented in Figure 1. The mean values indicate overall agreement with the four questions in the survey (see Table 2). Specifically, more than 90% of the participants ‘agreed’ or ‘strongly agreed’ that they became more knowledgeable about how to intervene when implicit bias influences colleagues’ decision-making ($M = 4.24$, and $SE = 0.13$). The frequency distribution of answers and the descriptive statistics for these variables are also presented in Table 2 in the Appendix.

Figure 1
Frequency Distributions for Question 1 subquestions

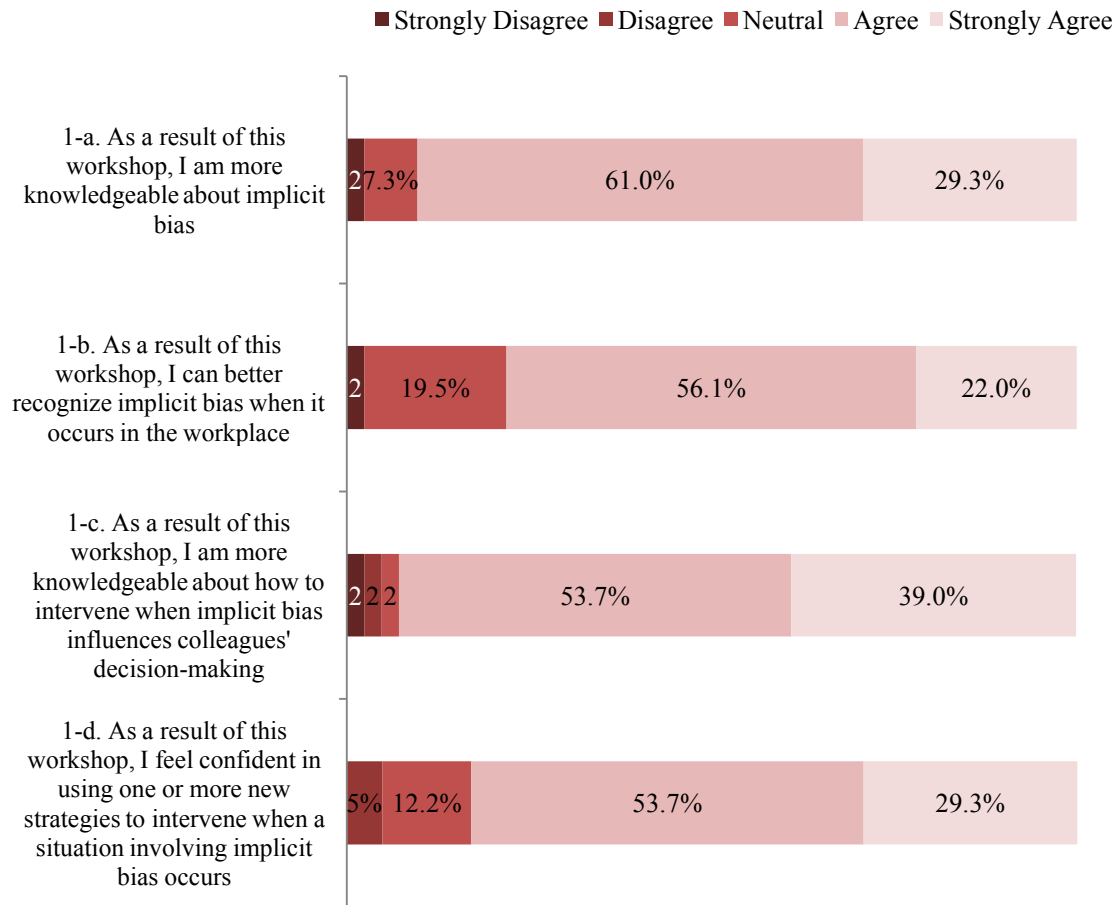


Table 2

Descriptive Statistics (Means and Standard Errors of Means) and Frequency Distribution for following four sub-questions

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	N	Mean	S.E.
1-a. As a result of this workshop, I am more knowledgeable about implicit bias	1	0	3	25	12	41	4.15	0.119
1-b. As a result of this workshop, I can better recognize implicit bias when it occurs in the workplace	1	0	8	23	9	41	3.95	0.126
1-c. As a result of this workshop, I am more knowledgeable about how to intervene when implicit bias influences colleagues' decision-making	1	1	1	22	16	41	4.24	0.130
1-d. As a result of this workshop, I feel confident in using one or more new strategies to intervene when a situation involving implicit bias occurs	0	2	5	22	12	41	4.07	0.123

Question 2: How hopeful are you that efforts such as this session will reduce issues with bias at this university?

Question 2 asked participants to rate their level of hope that the workshop will reduce issues with bias at the university. The frequency distribution of responses is

presented in Figure 2. Specifically, more than 83% of the participants were ‘hopeful’ or ‘very hopeful’ that this session will reduce issues with bias at the university ($M = 4.00$, and $SE = 0.123$). The frequency distribution of answers and the descriptive statistics for the variable are also presented in Table 3.

Figure 2

Frequency Distribution of Question 2 responses

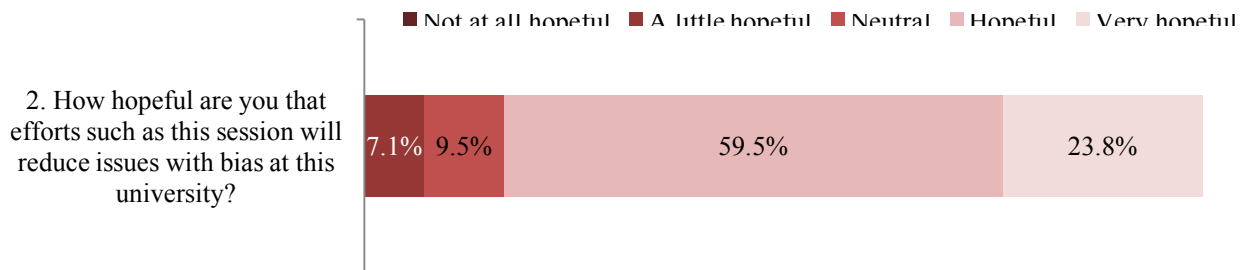


Table 3

Descriptive Statistics (Mean and Standard Error of Mean) and Frequency Distribution for following one question

	Not at all hopeful	A little hopeful	Neutral	Hopeful	Very hopeful	N	Mean	S.E.
2. How hopeful are you that efforts such as this session will reduce issues with bias at this university?	0	3	4	25	10	42	4.00	0.123

Open Response Results

Most important concepts learned.

Thirty-seven out of 42 survey participants answered the question, “*What was the most important concept you learned today?*” Of the 37 participants who responded, 68% reported learning strategies and approaches to intervention when confronted with a

workplace bias. Another 27% of respondents were more specific and identified certain strategies such as interrupting, questioning, dissonance and proper ways to approach a target, while 14% of participants conveyed identifying bias in the workplace as an important concept learned.

Would you recommend this workshop to other colleagues?

All 42 survey participants responded to the question, “*Would you recommend this workshop to a colleague?*” A resounding 86% stated that they would recommend the workshop while 14% percent responded maybe or left the question blank.

Recommendations, comments and observations

Twenty-three out of 42 (55%) survey respondents had remaining questions. While there was no significant overarching theme, there was curiosity about other types of bias, intervention levels and effectiveness of certain interventions with regards to promptness. Four participants were interested in seeing more examples or participating in further workshops.

A little less than half of the survey participants had no further comments or observations. There were very few negative comments but of the six recorded, two focused on the facilitator expressing bias of her own. The remaining four negative comments had to do with the facilitator’s style, a specific example used in Scenario 1, absence of the term micro-aggression and lack of department support. Thirty-eight percent (16 participants) had either positive comments about, or thanked the facilitator for the workshop. Some of the positive comments included making the presentation available for others, enjoyment of content, need for further promotion on this topic and desire to practice response to bias.



Center for Program Evaluation

Provost Speaker Series

Dr. Lisako McKyer

April, 7th, 2017

CPE Briefing

NSF:ADVANCE It Grant

April 26, 2017

PREPARED BY:

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On April 7th, 2017, Dr. Lisako McKyer presented her workshop titled “*Implicit Bias in the Academy*” to an audience of 45 individuals at the University of Massachusetts Lowell’s Emerging Technology and Innovation Center. At the conclusion of the presentation a Provost Speaker Series Survey was administered to all participants. This survey consisted of nine questions (see Appendix A for full survey). The first question asked participants to rate their level of agreement (on a five-point Likert scale) with seven statements regarding elements covered in the presentation. The seven sub-questions asked about individual knowledge and recognition of implicit bias and interventions, individual confidence in utilizing strategies to reduce campus bias, and overall satisfaction with the presentation. Four open-ended questions asked participants about concepts learned, and whether they had any remaining questions, additional comments and observations they wished to share. Four questions asked about participant demographics. Below are the results of this survey.

Participants

In total, forty-four people (11 men and 33 women) attended the workshop. This includes four female non-audience members (the speaker, a photographer and two UMass Lowell employees). Seven members of the WAVES team were in attendance and most likely did not complete a survey in an effort to reduce bias in the data. Of the remaining attendees 30 (90 % of attendees) completed the survey. The university roles and fields of study for the participants are provided with frequency counts in Table 1.

Table 1

Participant Description

Demographics	Participant
Title*	Department chair (2); Associate dean (2); Dean (3); Program or center director(1); Staff (6); Professor (3); Associate professor (4); Assistant professor (4); Adjunct professor (1); Lecturer (1); Student (3); EDD (1)
Gender	Male (10); Female (20)
Field of Study	Education (4); Engineering (3); Mechanical Engineering (1); Science (1); Biology(1); Chemistry (1); Physics (1); Computer Science (1); Business (1); Finance (1); Management (1); Community Social Psychology (1); Discrimination in employment (1); Gerontological Nursing (1); Gerontology (1); Health (1); Physical Therapy/Academia (1); Did not answer (7)
First-time Attendee	First-time Attendee (9)

*Note**. Two participants have *duplicate* roles; two participants are part of evaluation team

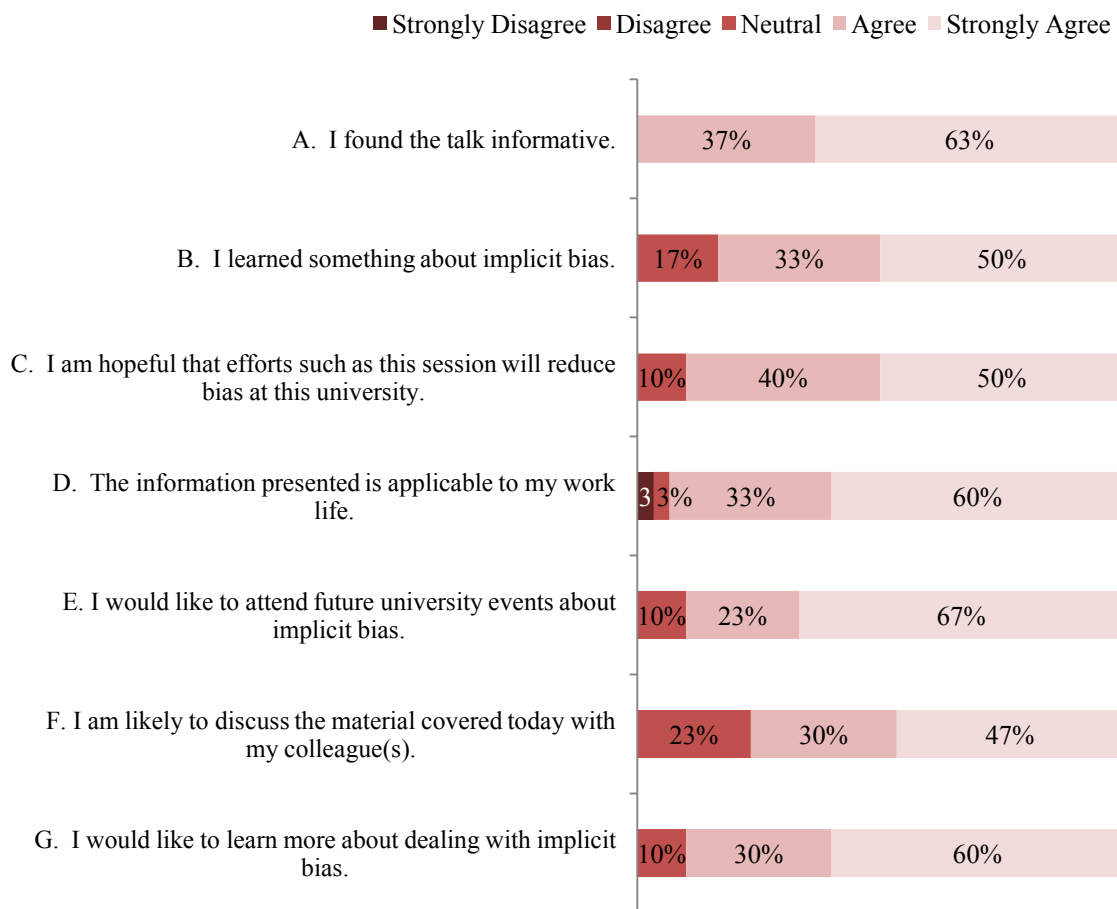
Survey Results**Closed Ended Questions**

Question 1 surveyed participants about their level of agreement for seven areas of the presentation. The frequency distributions for the responses are presented in Figure 1. The mean values indicate overall agreement with the four questions in the survey (see Table 2). For each item, more than 77% of the participants ‘agreed’ or ‘strongly agreed’. All participants ‘agreed’ or ‘strongly agreed’ that they found the talk informative (M =

4.63, and SE = 0.089). The frequency distribution of answers and the descriptive statistics for these variables are also presented in Appendix B.

Figure 1

Frequency Distributions for Question 1 sub-questions



Open Response Questions

What did you hope to learn at the event? Twenty-three out of 30 survey participants answered the question, “When you arrived at the event, what were you hoping to learn or do?” Of the 23 participants who responded, 71% reported that they hoped to learn how to identify bias and strategies to deal with bias on personal or

systemic levels. Another 29% of respondents had more specific actions that they hoped to learn such as self-reflection, workplace actions, and identifying micro-aggressions.

What were the most important concepts learned? Twenty-four out of 30 survey participants answered the question, “*What was the most significant thing you learned from the event?*” Of the 24 participants who responded, 66.7% reported learning the reality of implicit bias and the strategies to deal with bias. Another 16.7% of respondents learned the importance of the comments from leaders, while 16.7% of the participants conveyed self-reflections in the workplace as an important concept learned.

Recommendations, comments and observations. Ten of the 30 survey respondents (33.3%) had remaining questions. Five participants were curious about UMass Lowell efforts and current systems in place to deal with implicit bias, two were curious about specific steps to recognize and reduce implicit bias, and three were interested in learning more about how they can apply the concepts to faculty, administration, graduate students, and students from diverse backgrounds.

Half of the survey participants had no further comments or observations. There were very few negative comments, but two mentioned that the content at the event was very similar to the previous speakers. Sixty percent (9 participants) had either positive comments about, or thanked the facilitator for, the workshop. Four participants commented on making the presentation available for others, the need for further actionable items in the context of the university, and the desire to practice response to bias.

Appendix A

Provost Speaker Series
Dr. Lisako McKyer
April 6, 2017

Thank you for your attendance at today's presentation. To assess the degree to which this series is fulfilling a university need, please take 5 minutes complete this evaluation survey following the presentation. By completing this survey you are giving consent for your participation and for us to use this anonymous data in any reports, publications or presentations.

1. Please rate the following on your level of agreement.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
A. I found the talk informative.					
B. I learned something about implicit bias.					
C. I am hopeful that efforts such as this session will reduce bias at this university.					
D. The information presented is applicable to my work life.					
E. I would like to attend future university events about implicit bias.					
F. I am likely to discuss the material covered today with my colleague(s).					
G. I would like to learn more about dealing with implicit bias.					

1. Is this your first time attending a Provost Speaker Event? *(Please circle)* Yes No

2. Please indicate your title *(Please circle all that apply)*
- | | | |
|---------------------|----------------------------|---------------------|
| Student | Postdoctoral Scholar | Assistant Professor |
| Associate Professor | Full Professor | Department Chair |
| Staff | Program or Center Director | Dean |
| Associate Dean | Other: _____ | |
3. Which gender do you most identify with? *(Please circle)*
- | | | | |
|-------|--------|------------------|--------------------|
| Male | Female | Transgender male | Transgender female |
| Other | | | |
4. My field of study is: _____
5. When you arrived at the event, what were you hoping to learn or do?
6. What was the most significant thing you learned from the event?
7. What is one question you still have after attending this event?
8. Any other comments or observations you would like to share about this event?

Appendix B

Descriptive Statistics (Means and Standard Errors of Means) and Frequency Distribution for following four sub-questions

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree	N	Mean	S.E.
A. I found the talk informative.	0	0	0	11	19	30	4.63	0.089
B. I learned something about implicit bias.	0	0	5	10	15	30	4.33	0.138
C. I am hopeful that efforts such as this session will reduce bias at this university.	0	0	3	12	15	30	4.40	0.123
D. The information presented is applicable to my work life.	1	0	1	10	18	30	4.47	0.157
E. I would like to attend future university events about implicit bias.	0	0	3	7	20	30	4.57	0.124
F. I am likely to discuss the material covered today with my colleague(s).	0	0	7	9	14	30	4.23	0.149
G. I would like to learn more about dealing with implicit bias.	0	0	3	9	18	30	4.50	0.125



Center for
Program
Evaluation

Engineering Retreat Survey Results

December 20th, 2016

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Leah Ferullo, M.Ed.

Engineering Retreat Survey Open Response Analysis

The Women Academics Valued and Engaged in STEM (WAVES) team at The University of Massachusetts Lowell presented data regarding the school's Institutional Transformation Project at the university's engineering retreat on December 20th, 2016. The presentation included the goal of increasing representation and fostering a supportive institutional culture for all by (1) disrupting subtle biases and microaggressions, (2) promoting alternative support networks for STEM faculty and (3) addressing organizational policies and practices that can breed bias. After defining the term microaggressions, the presenters provided data about faculty and campus composition as well as campus climate. A three question open response survey was handed out to all participants of the retreat and forty-two surveys with at least partially completed answers were collected and analyzed. Question one focused on the reaction of the participants to the data presented. Questions two focused on current efforts being taken by departments to address issues found in the presented data while question three asked for ideas and suggestions for future actions to address these issues. Common themes emerged during the analysis of each individual question as well as the analysis of the three questions as a whole.

Question 1

Participants were asked what they found interesting about the data presented. Three major trends emerged. Fifteen participants had some issue or disagreement with the data. For example, answers recorded included, "no confidence intervals," "lack of certain data (context, number of questions asked etc.)," "unclear data," "not up to date," and "difficult to interpret." Eight participants reported not being surprised by the

presented data while six contributors mentioned that lecturers were not included in the data. Only two participants agreed that the data presented seemed accurate, one of which who offered that they found the data to be lower than their previous estimation. There were four positive or agreeable comments in favor of the presented data, but five negative or disagreeable responses (See Table 1).

Table 1
Individual comments that may be interpreted as having positive and/or negative undertones:

Positive or Agreeable Comments	Negative or Disagreeable Comments
<ul style="list-style-type: none"> • Not Surprised. The pipeline (Ph.D's and Postdocs) needs to be addressed • I believe the change has to come at an earlier stage to get more females into Engineering -> PhD -> academia to hire more faculty • Also kick back from audience was not unexpected • Institutional policy IS institutional culture! Need to be reflective as an institution. Just because policy is in place doesn't mean overall culture reflects this! 	<ul style="list-style-type: none"> • Data was interesting but would have been helpful to include context: What is the "expected" percentage of women, URM, in engineering? For example, a similar approach would be used for males in K12 teaching or nursing • Microaggressions are real to the offended, but may not always be reasonable (to a jury of peers). • This is PC at its worst! • Very difficult to interpret from slides. Need to be very careful analyzing this data. In particular, very difficult to attribute very causation from correlation. Also subjective perception plays a big role in possible bias, e.g. men and women often communicate very differently. • I found the comment about not wanting to be singled out as a women very interesting. I have often wondered if problems with segregation of groups being discriminated against should be addressed with more separation. Not that I know the answer, but I worry that we are heading towards more problems and not less.

Question 2

Participants were asked “What if anything is your department already doing to address the issues you see in this data?” Nine participants believed their department was addressing the issue of hiring or the hiring process. Interestingly, the next two highest responses were to either leave that question blank or answer “nothing” or “no idea.” Six individuals were either not aware any problem exists or do not believe there is a problem. Five participants noted an increase of diversity in their department and three mentioned the presence of mentors, collaboration or inclusiveness as way their department was addressing these issues. There were a total of seven positive or agreeable comments regarding active steps their departments were taking in addressing the issues presented in the data, and only three contributors had negative comments about the lack of action being taken or the belief no real issue exists.

Table 2

Individual comments that may be interpreted as having positive and/or negative undertones:

Positive or Agreeable Comments	Negative or Disagreeable Comments
<ul style="list-style-type: none">• In my department the female percentage is higher than average• We are about 1/3 female and I think we have a good environment• There seems to be a lot more support for families and family situations• Encourage women to take leadership roles• With new chair, greater transparency in policies/decisions• Trying to promote women role models in research• My dept. is great. We are all humans	<ul style="list-style-type: none">• Nothing. I was the first woman faculty to go on maternity leave and was given 1 year deferment on the tenure-clock, but the expectations for continuing to work from home during my maternity leave. In addition, I had to formally request that the tenure clock be stopped -> should have been automatic• We are hiring women with ethnic backgrounds. Not sure this is a “real” issue• Mention of “benign neglect” <-> some faculty think that is good. Others strongly disagree

Question 3

On the last question participants were asked “What ideas do you have for addressing representation of women and people from underrepresented groups among your faculty department?” The largest response was nine participants who left that question blank. Eight answered that they believe there should be an increase in diversity or diversity training in their departments. Six individuals noted mentoring as an area that needed attention, while six other participants mentioned recruiting and/or student encouragement as an area that needed to be addressed. Hiring and the hiring process were identified by five participants as an issue needing attention and four individuals answered that work needs to be done regarding awareness of issues such as microaggression and subtle bias. Childcare on campus was an area identified as needing to be addressed by four contributors. This question received the most number of positive or proactive comments with 11 suggestions or ideas for next steps. Five out of 42 surveys had negative or disagreeable comments regarding future actions (See Table 3).

Table 3

Individual comments that may be interpreted as having positive and/or negative undertones:

Positive or Proactive Comments	Negative or Disagreeable Comments
<ul style="list-style-type: none"> • Biological clock vs. tenure clock • Leadership should be representative of the population they are serving! • Clear mandate from the top for the depts. To do something • Departmental social clubs, such as women in engineering etc. to be established or revitalized in order to represent underrepresented in a better (fashion?) • This will be a slow, steady process. Nothing will change overnight <ul style="list-style-type: none"> ○ The best way to affect change is to keep the spotlight on awareness. Stress these concepts regularly at faculty meetings. • Appointment of women as department chair; equal opportunity hiring; interview questions re diverse/inclusive culture; mentoring/supportive culture; fair implementation of policies. • - Reduce the emphasis on hiring faculty for research. <ul style="list-style-type: none"> ○ There are persons (minorities, women) who want to be teachers with less emphasis on research. • Female faculty club-confidential talk is allowed • No repercussions if issues raised • Keep working. More hiring • Flex tenure!! 	<ul style="list-style-type: none"> • Lecturers are underrepresented and have many microaggressions and institutional biases • I do not see any institutional bias or discrimination against women (I'm male). I believe the main issue is micro-aggressions. Plus, especially in engineering, many graduate students come from abroad, often from other cultures that are not as woman friendly as the western culture. This would cause difficulties for female professors. • No huge idea. I don't have the answers. • Leave it alone • You are wasting your time

Emergent Themes Across Questions

Seven themes emerged from the analysis across all three questions. First, responses indicate the desire for a revised promotion and tenure process with transparent data with attention to be paid to maternity leave and childcare issues. Answers to questions two and three depict feelings of a lack of a push, or organization, from leadership positions in regards to clear mandates and fair policy implementations. A need for mentors, collaboration and inclusiveness was mentioned by multiple participants as was a need for examining the hiring process. Participants offered action steps regarding the hiring process such as review the recruiting process, promote awareness of disparity, student encouragement and increase diversity. The last two common themes that emerged were the need for awareness in regards to bias and benign neglect as well as the mention of childcare. It is important to note that the data itself was a large factor in the question one responses and participants highlighted the fact that lecturers were not included as well as believed there was a disagreement in analysis or lack of data (or that the data was redundant.)

Appendix A

Questions Asked and Answers That Had More Than One Similar Response

Question 1:

Reaction: *What do you find interesting in the data presented today?*

Major Trends

- 15 participants had some issue/disagreement with data
 - no confidence intervals
 - lack of certain data (context, number of questions asked etc.)
 - unclear data
 - not up to date
 - difficult to interpret
- 8 participants not surprised by data that exists.
- 6 participants mentioned that lecturers were not included in data
- 2 Participants agreed that data seemed accurate
 - Participant 6 found data to be lower than their previous estimation

Question 2:

Current Efforts: *What, if anything is your department already doing to address the issues you see in this data?*

Major Trends

- 9 participants mention hiring or hiring process something department is addressing

- 8 participants left this question blank
- 7 participants responded nothing or no idea
- 6 participants were not aware any problems exists or do not believe there is a problem
- 5 participants note increasing diversity in department
- 3 participants mention mentor, collaboration or inclusiveness

Question 3:

Current Efforts: *What ideas do you have for addressing representation of women and people from underrepresented groups among your faculty department?*

Major Trends

- 9 participants left this question blank
- 8 participants note increase diversity or include diversity training
- 6 participants note need for mentoring as an area of needed attention
- 6 participants mention recruiting and/or student encouragement as an area to be addressed
- 5 participants mention hiring and hiring process as an area needing to be addressed
- 4 participants mention child care on campus
- 4 participants note that work needs to be done regarding awareness of issues such as microaggression and subtle bias

Appendix B

Emergent Themes Across Questions

Seven themes emerged from the analysis across all three questions.

1. The desire for a revised P & T process with transparent data
 - Attention to be paid to maternity leave and childcare issues
2. Feelings of a lack of a push or organization from leadership positions in regards to clear mandates and fair policy implementations
3. The need for mentors, collaboration and inclusiveness
4. Examine the hiring process
 - recruiting process
 - awareness of disparity
 - student encouragement
 - increase diversity
- 5- Need for awareness in regards to bias, benign neglect etc.
- 6- Childcare
- 7- Large factor in question 1 was the data itself
 - lecturers not included
 - disagreement in analysis
 - lack of data or redundant data