YEAR 4 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) has completed the fourth 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. The Year 4 external evaluation incorporates both quantitative and qualitative data collected by the internal and external evaluators. The report shares findings on the extent to which the Year 4 grant activities have moved UML closer to achieving its three goals and social science research, detailed below:

Program Goals and Key Accomplishments

Goal 1: Disrupt microaggressions

- **Survey feedback cycles on workplace climate data** to enable departments and colleges to raise awareness and help them set and track progress toward equity goals
- **Awareness campaign** to raise awareness of subtle biases that affect women in STEM
- **Equity Leaders Training** for faculty identified by STEM deans as well respected, opinion leaders to develop a distinctive UML approach to bystander training and to build leadership skills for addressing subtle biases
- **Bystander Training for faculty** facilitated by Equity Leaders to promote skills to address subtle bias and build broad-based support for reducing bias at interpersonal and institutional levels

Key Impacts for Goal 1:

- WAVES shared results from the 2019 Gender Bias in Academia (GBAI) workplace climate survey with the executive board, other administrators, and the College of Education showing varying perceptions based on gender, race, rank, and unit.
- Empirical research demonstrates that Bystander Training increased participants' likelihood of bystander intervention and bystander efficacy, which suggests that the training supports diversity, equity, and inclusion goals at UML and may improve the overall institutional climate.
- WAVES disseminated information about its Bystander Training program through presentations, a poster session, and journal articles (currently under review). The team also provided information about the Bystander Training to institutions that indicated they would like to implement a similar initiative and explored options to launch a train-the-trainer program, which suggests the potential for far-reaching impact.
- The WAVES team and Equity Leaders created a "2.0" iteration of the Bystander Training to raise awareness of topics around intersectionality, fulfilling a key programmatic goal and requests from previous participants to provide information about the issue.

Goal 2: Provide alternative support mechanisms for faculty

- Expand the 50/50 Lecture series into the **50/50 Networking and Lecture Series** to

highlight multiple pathways for success in STEM and provide networking opportunities for UML junior faculty with senior researchers from across the nation
- **IDEA (InterDisciplinary Exchange and Advancement) Communities** to provide collaborative mentoring and leadership development for associate professors (no longer being pursued by WAVES)

Key Impacts for Goal 2:
- The 50/50 Lecture Series had 134 attendees across 3 lectures in Year 4, comprising primarily graduate students (80%) and assistant professors (10%). More than 80% of those who responded to the post-lecture survey indicated that they learned something that will help them in their careers.
- Feedback from external evaluation interviews conducted in Year 4 with UML women faculty who hosted the 50/50 Lecture Series in Years 1-3 suggests that hosts' participation in the program provided them with professional benefits, including professional connections and opportunities for collaboration.

Goal 3: Promote Equity and Accountability
- **Foggy Climate Initiative** to establish detailed decision-making procedures for high stakes decisions (P&T, annual reviews, merit), to analyze and promote equity by gender around service assignments, and review university policies that affect gender equity
- **WAVES Departmental Accountability Initiative** to create and implement a protocol for college and department self-assessment, goal setting, action planning, and annual evaluation of progress

Key Impacts for Goal 3:
- According to information provided in interviews, faculty serving on evaluation committees are using the personnel protocol in their decision-making processes and are interested in pursuing additional ways to ensure fairness and equity in decision making.
- Five departments signed on to participate in the Departmental Accountability Initiative, all in STEM: Biology, Chemistry, Electrical and Computer Engineering, Plastics Engineering, and Physics. Their participation has the potential to improve departmental culture, service assignments, and job satisfaction among faculty and could provide a model for other units at UML.

Social Science Research

The social science research seeks to: (1) provide new nuanced and more ecologically valid insights into microaggressions faculty experience and their consequences; (2) examine the extent to which individuals witness other faculty experiencing microaggressions and whether (and how) they intervene as bystanders (3) expand understanding of how gendered microaggressions are experienced in the context of intersectional racial identities; (4) extend research on effective intervention strategies.

In the fourth year of the grant, WAVES disseminated results from the Daily Bias Survey conducted in 2017-2019 showing that faculty of color, women, and untenured faculty reported

more slights than their faculty counterparts, and drafted a research paper about the study, currently under review. The results of the survey provide insight into faculty experiences, which can guide UML's efforts to improve the institutional climate.

The social science research team also examined the impacts of the Bystander Training program. According to participant evaluations conducted before the workshop, immediately after, and at six and twelve weeks post-training, the training increased participants' likelihood of intervening in situations where they witnessed microaggressions and their confidence in doing so. Those impacts were sustained at six and twelve weeks. WAVES disseminated results in a variety of ways, such as at the 2020 Sociologists for Women in Society annual meeting, via a poster at the New England Psychological Association, and by submitting articles for publication. This research demonstrates the program is evidence-based and produces measurable impacts.

Summary and Recommendations

Year 4 Strengths:

- The number and percent of women associate professors in STEM increased from 20% in Fall 2016 to 30% by 2019. Women's share of full professors in SBS increased from 48% in 2016 to 54% in 2019.
- There were positive increases in women's representation in leadership positions. In 2019, 25% of STEM department heads were women, up from 0 in the 2016 baseline, and the percentage of women SBS department heads increased from 40% in 2016 to 71% in 2019. Across all of UML, there were three women deans, four associate deans, and six vice-provost or higher positions (54%) in 2019, an increase from 40% in 2016.
- There is clear, meaningful support for WAVES from upper administrators.
- A data-driven approach offers insight into institutional climate, faculty experiences, demographics, hiring, tenure, and promotion.
- The Bystander Training program is a well-recognized, impactful, faculty-led initiative. Research findings demonstrating its effectiveness can be used to further promote the training, both within UML and to other institutions considering implementing a similar program.
- Bystander 2.0 extends the original training with additional focus on race, ethnicity, and intersectionality.
- The various social science research studies are advancing knowledge about microaggressions, their impacts, and ways to intervene. These findings advance both practical and theoretical importance.

Year 4 Challenges:

- Although there have been improvements in the representation of women in top leadership positions at UML (described above), women are still underrepresented in some STEM leadership positions (for instance, all STEM deans are men).
- Because the Bystander Training is voluntary, faculty who could most benefit from participating may not choose to attend.
- The Departmental Accountability Initiative requires a large investment of time and effort by department chairs and members of the WAVES team.

- As to be expected, WAVES has experienced COVID-related challenges pertaining to needing to reorient material to a virtual format, overall limited bandwidth of faculty and administrators, and institutional budget impacts.

Key Recommendations:

- **Prioritize activities and programs for sustainability.** Based on the findings presented in this report, the Bystander Training is the team's signature programming with documented impacts and should be a priority for sustainability. It should be maintained as a faculty-led initiative and adequate support for Equity Leaders is essential for its continuation. There are other impactful (or potentially-impactful) WAVES initiatives that can be priorities for sustainability.
- **Develop a detailed sustainability plan to guide discussions with the Provost and other key institutional stakeholders.** The plan should include possible institutional structures for sustainability, costs, and identify systems of accountability. Attention should also be given to persons, processes, or resources that are necessary to support those initiatives and monitor change, including data collection and analysis (for example, the GBAI survey). The capacity to maintain a data-driven approach is essential for supporting sustainability.
- **Continue active dissemination of the Bystander Training and research findings.** The team has developed an impressive set of products and research that has wide applicability and makes meaningful contributions to research and practice pertaining to improving the academic climate.
- **Maintain the intersectional focus in programming, research, and data analysis.** The development of Bystander 2.0 is a key contribution to ensuring that intersectionality be featured prominently in programming and foci. Grant-related research, data analysis, and other programming should also maintain an intersectional lens.
- **Mobilize key stakeholders to support sustainability efforts.** Use the IAB and other strong advocates to help guide discussions of sustainability and to be spokespersons for promoting the impacts and successes that have resulted from the grant's work, such as by sharing them with their departments, colleges, and units. This dissemination will also help with generating support for institutionalizing key programs.

In Year 4, WAVES efforts centered around conducting and analyzing the impacts of the Bystander Training, hosting the 50/50 Networking and Lecture Series, and working with STEM departments on the Departmental Accountability Initiative. The grant's robust research protocol will provide vital information about the effectiveness of WAVES initiatives and overall impacts and should continue to remain a focus in Year 5. The team effectively mobilized to continue work even through the pandemic and is well-poised to become a national leader in the areas of Bystander Training and research on microaggressions.

2. INTRODUCTION

2.1 Organization of the Report

This report describes external evaluation findings pertaining to Year 4 of the University of Massachusetts Lowell (UML) NSF ADVANCE-IT grant. The report is divided into several sections. Following this introduction, Section 2.2 provides a brief overview of the major goals of the UML ADVANCE grant, and Section 3 describes the evaluation objectives and methods. Section 4 summarizes ADVANCE Indicators Toolkit data as it pertains to overall program goals. Section 5 covers the main activities undertaken in Year 4 of the grant, and the report concludes 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 the fourth 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 on workplace climate** to enable departments and colleges to raise awareness and also to help them set and track progress toward equity goals
- **Awareness campaign** to raise awareness of subtle biases that affect women in STEM
- **Bystander Training for faculty** facilitated by Equity Leaders to promote skills to address subtle bias and build broad-based support for reducing bias at interpersonal and institutional levels

Goal 2: Provide alternative support mechanisms for faculty

- Expand the 50/50 Lecture Series into the **50/50 Networking and Lecture Series** to highlight multiple pathways for success in STEM and provide networking opportunities for UML junior faculty with senior researchers from across the nation
- **IDEA (InterDisciplinary Exchange and Advancement) Communities** to provide collaborative mentoring and leadership development for associate professors

Goal 3: Promote Equity and Accountability

- **Foggy Climate Initiative** to establish detailed decision-making procedures for high stakes decisions (P&T, annual reviews, merit), analyze and promote equity by gender around service assignments, and review university policies that affect gender

equity
- **WAVES Departmental 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

The purposes of the social science research agenda are to: (1) provide new nuanced and more ecologically valid insights into microaggressions faculty experience and their consequences; (2) examine the extent to which individuals witness other faculty experiencing microaggressions and whether (and how) they intervene as bystanders (3) expand understanding of how gendered microaggressions are experienced in the context of intersectional racial identities; (4) extend research on effective intervention strategies

Three related studies, grounded in daily diary methodology, are being conducted:

Study 1: Understanding microaggressions: Incidence, impact and intersectionality in a national sample

Study 2: Understanding microaggressions: Incidence, impact and intersectionality at UMass Lowell (in conjunction with the bystander training initiative)

Study 3: Impact of daily diaries on attitudes toward microaggressions

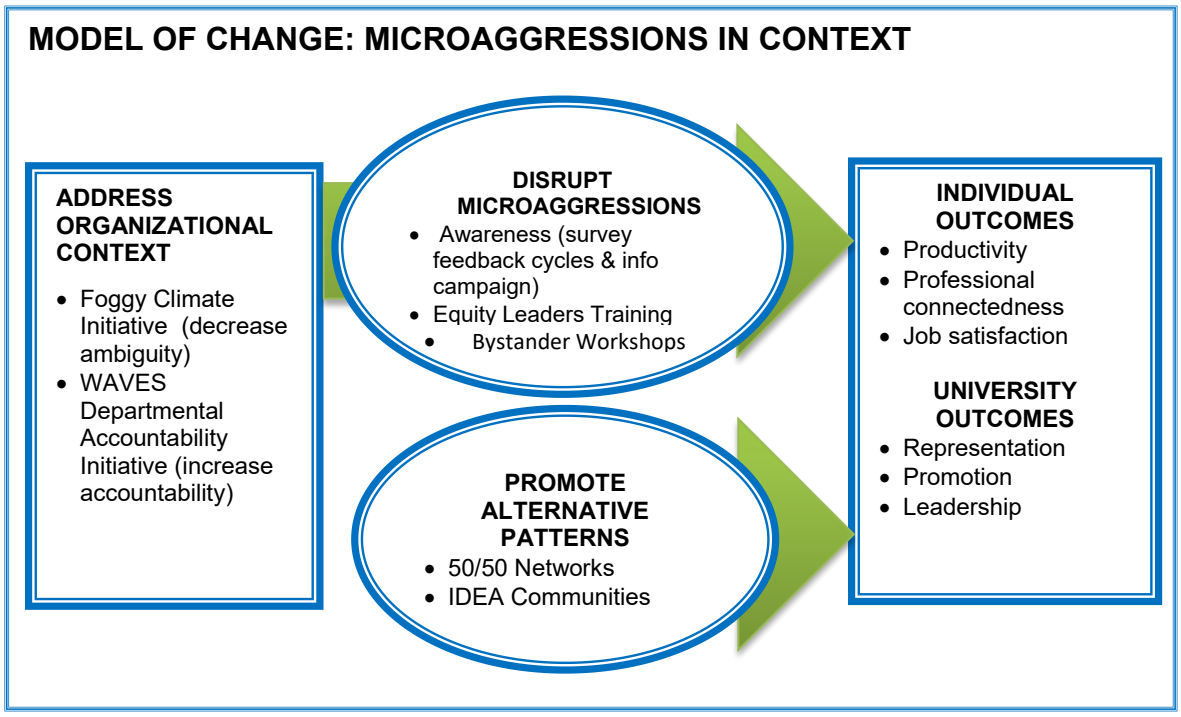
Theory of Change

The theory of change is derived from research evidence that in order to reduce widespread 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 awareness campaign, and faculty-run bystander training workshops
- *Promoting alternative interactional patterns that support the success of STEM women* via 50/50 Networking and Lecture Series 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 Departmental 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, Responsibilities, and Objectives

The evaluation activities described in this report address the period between October 2019 (completion of the Year 3 external evaluation report period) and October 2020, encompassing the grant's fourth year of funding.

Evaluation activities were undertaken by internal and external evaluators.

Dr. Jill Lohmeier, Associate Professor, Research 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 4 included:

- Summarizing findings from UML-ADVANCE event evaluation forms
- Participating in project meetings
- Providing feedback to the external evaluator and the UML-ADVANCE team on evaluation activities and procedures
- Observing key program events

- Analyzing data from the Faculty Workplace Climate Survey and presenting findings to various campus stakeholder groups

Dr. Mariko Chang, President of Mariko Chang Consulting, Inc., is the external evaluator. Key evaluation efforts undertaken by the external evaluator in Year 4 included:

- Providing feedback on internal evaluation efforts
- Interviewing key stakeholders to inform the annual evaluation
- Summarizing "toolkit" indicator data
- Conducting an annual external evaluation to provide formative feedback that utilizes data collected by the internal evaluator and the project team

Evaluation objectives for this external annual evaluation report are to:

- Describe implementation activities, successes, and challenges
- Provide formative feedback to facilitate project refinements
- Document impacts of the program activities to date
- Enhance communication among the leadership team and stakeholders to inform discussions of sustainability

3.2 Evaluation Methods and Data

This external evaluation incorporates both quantitative and qualitative data derived from the sources described below.

Interviews: Dr. Chang and Research Associate Ms. Sadie Davis conducted interviews in September and October 2020 via phone with the following stakeholders: the principal investigator (PI), co-PIs, internal evaluator, chancellor, deans, department chairs, Internal Advisory Board members, Equity Leaders, and key institutional partners. A total of 27 people were interviewed.

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 (see Appendix) and key findings are summarized in this report.

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

Surveys: The Gender Bias in Academia Index (GBAI) faculty workplace climate survey (formerly the Subtle Gender Bias Index (SGBI)), developed through the ADVANCE PAID grant and revised with the IT grant, was administered for a third time in summer 2019. A summary of findings was made available to the external evaluator.

WAVES Program Documentation and Process Data: Information from project activities, records, grant-related research findings, and reports were provided to the external evaluator.

4. SUMMARY OF INDICATORS TOOLKIT DATA

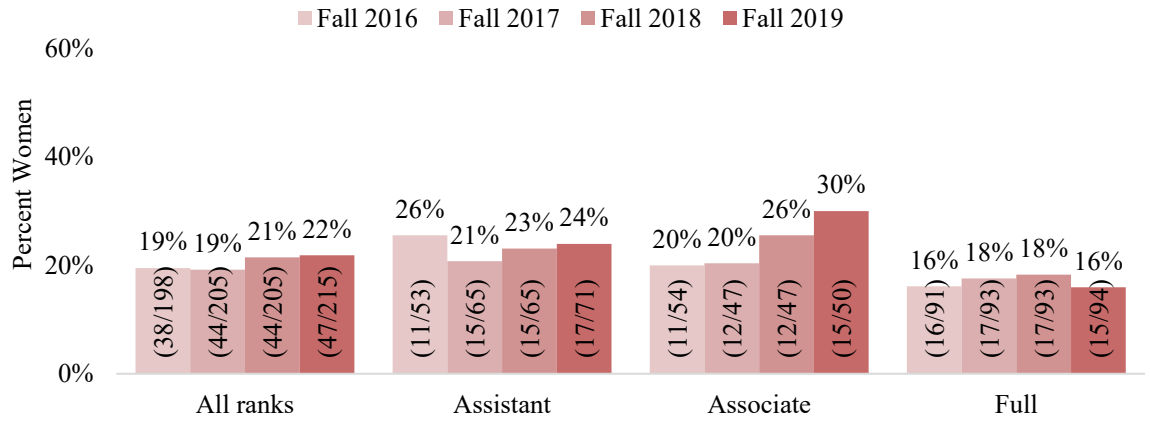
Key indicators of women's status in STEM and SBS are collected in the Indicators Toolkit data reported by the university to NSF and to the internal and external evaluators. Data on women's representation by rank and in leadership positions, as well as among those hired, leaving the university, and being promoted are summarized in this section.

4.1 Composition of Women Faculty in STEM and SBS by Rank

In Fall 2019 (Year 4 of the grant), STEM departments included 215 tenured/tenure-track faculty in total, and SBS included 68 faculty members. Overall, 22% of STEM faculty and 53% of SBS faculty were women (Figures 2 and 3). The percentage of women in SBS remained stable from Year 3 to Year 4 and increased in STEM from 21% to 22%.

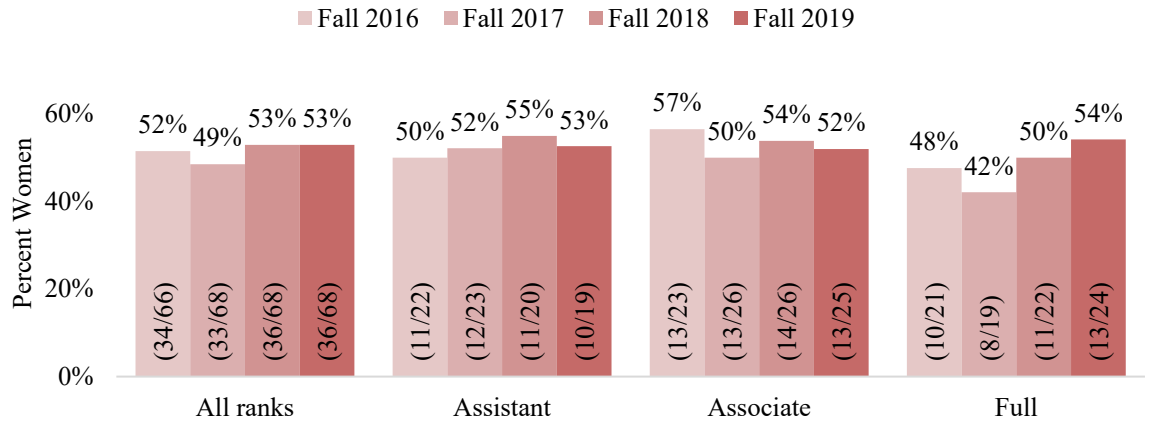
STEM fields showed an increase in the proportion of women in assistant and associate professor positions between Years 3 and 4 (Figure 2). The percentage of women assistant professors increased from 23% to 24% and that of associate professors, from 26% to 30%. Notably, the number and percent of women associate professors in STEM increased from 20% (with 11 women) in Fall 2016 to 30% (with 15 women) by 2019. Over the same period, the percentage of women full professors in STEM fell somewhat (from 18% to 16%), with the number decreasing from 17 to 15.

Figure 2. Percent of Women Faculty in STEM, by Rank and Year (Number of women / total faculty in parentheses)



Between Years 3 and 4, the percentage of women among assistant and associate professors in SBS has decreased slightly, yet remains over 50% (Figure 3), while the percent of full professor women in SBS increased from 50% in Year 3 to 54% in Year 4, with 13 full professors. When looking back to 2016, women's share of full professors in SBS has increased even more, from 48% to 54%.

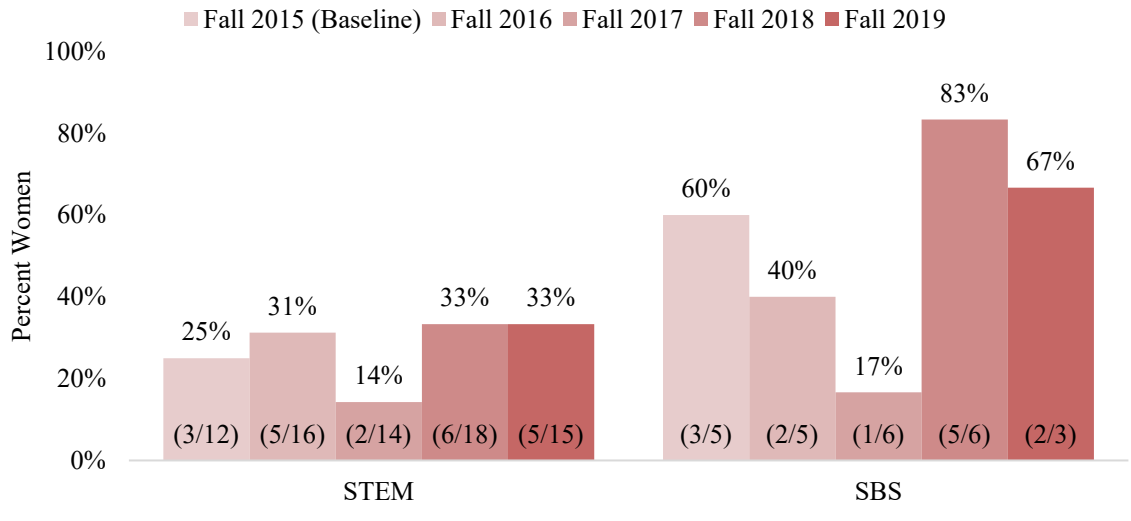
Figure 3. Percent of Women Faculty in SBS, by Rank and Year
(Number of women / total faculty in parentheses)



4.2 Recruitment of Women STEM and SBS Faculty

In Year 4 of the grant, 15 faculty were hired in STEM and 3 in SBS departments (Figure 4). In STEM, women represented 33% (N=5) of new hires, the same as the previous year. In SBS, two women were hired in Year 4 (67% of total).

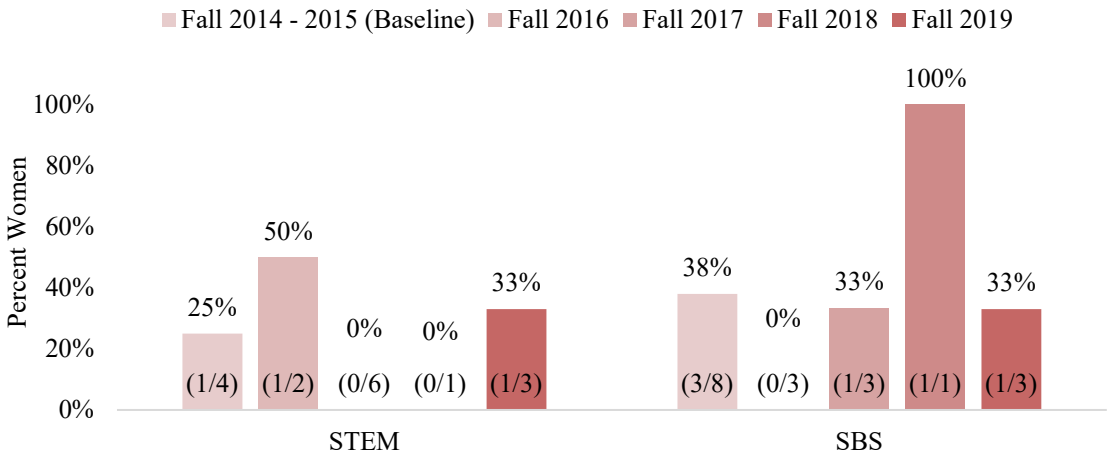
Figure 4. Percent of Women among New Hires in STEM and SBS, 2015 - 2019
(Number of women / total faculty in parentheses)



4.3 Retention of Women STEM and SBS Faculty

As shown in Figure 5, one woman faculty in STEM and one in SBS left the university (other than through retirement) in Year 4, in both cases representing 33% of non-retirement attrition.

Figure 5. Percent of Women in Voluntary, Non-Retirement Attrition in STEM and SBS, by Year (Number of women / total faculty in parentheses)

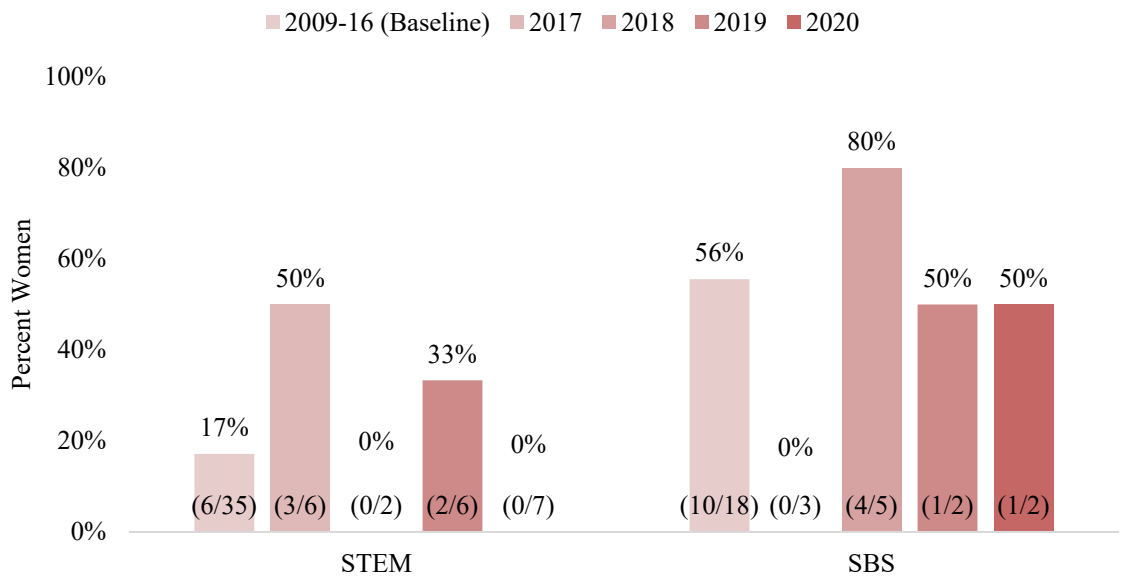


Overall, during the past four years, 17% of STEM and 30% of SBS attritions were women. The proportion of women leaving in STEM and SBS is lower than their representation, suggesting that women are less likely to leave the university than men (other than through retirement). These trends should continue to be monitored given the small numbers.

4.4 Advancement of Women STEM and SBS Faculty

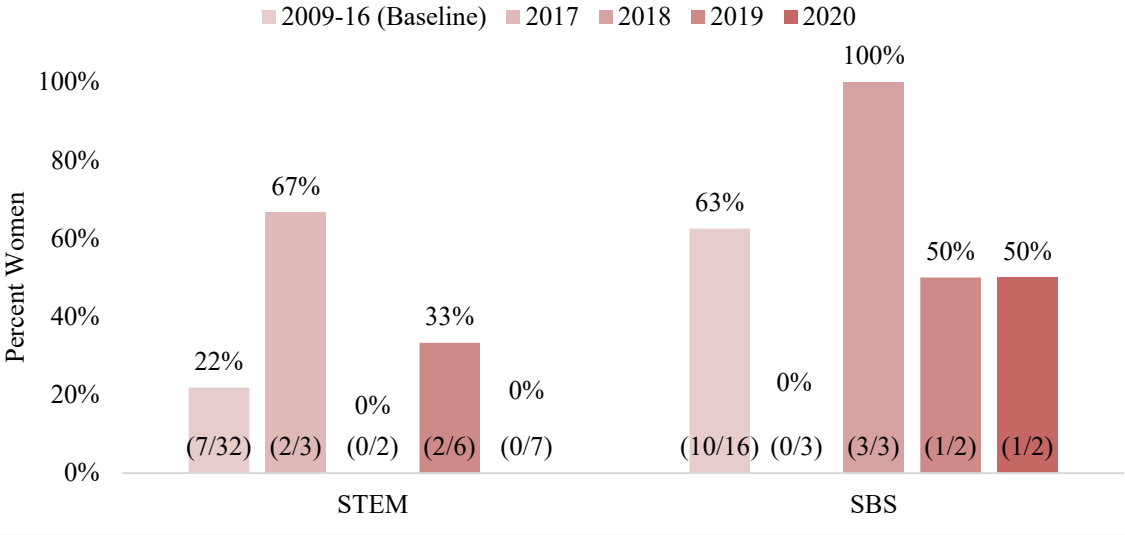
In Year 4, seven STEM faculty received tenure, all male; in SBS, one woman and one man received tenure (Figure 6). Overall, the percentage of women receiving tenure in STEM has increased from 17% at the baseline to 24% across all four ADVANCE years. In SBS, the percentage of women who received tenure was roughly stable, from 56% at baseline to 50% in ADVANCE years.

Figure 6. Percent of Women among Tenure Approvals in STEM and SBS, by Year (Number of women / total faculty in parentheses)



Women's percentage of promotions from assistant to associate professor shows very similar patterns as tenure approvals. Across the baseline and all four program years, women comprised 22% of promotions in STEM (Figure 7), while it decreased in SBS from 63% to 50%.

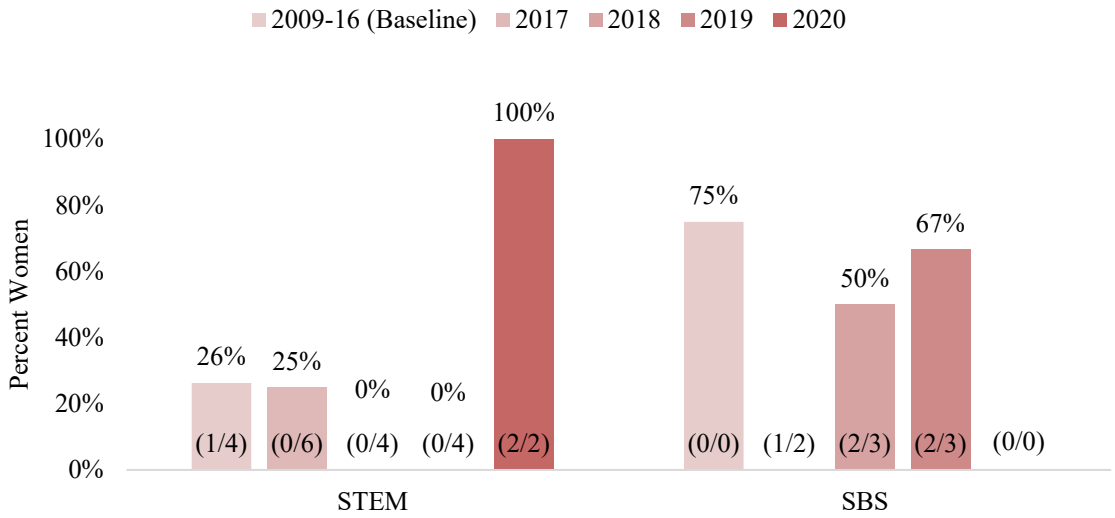
Figure 7. Percent of Women among Promotions from Assistant to Associate Professor in STEM and SBS, by Year (Number of women / total faculty in parentheses)



In Year 4, two women received promotions to full professor in STEM (Figure 8). Overall, the percent of women in promotions to full professor in STEM is still down from 26% at baseline to 19% across the ADVANCE program years.

In SBS in Year 4, there were no promotions to the full professor rank. Overall, the percentage of full professor promotions awarded to women in SBS has decreased slightly from 75% in the baseline to 60% across ADVANCE Years 1-4 (it is important to bear in mind the sample sizes are small).

Figure 8. Percent of Women among Promotions from Associate to Full Professor in STEM and SBS, by Year (Number of women / total faculty in parentheses)

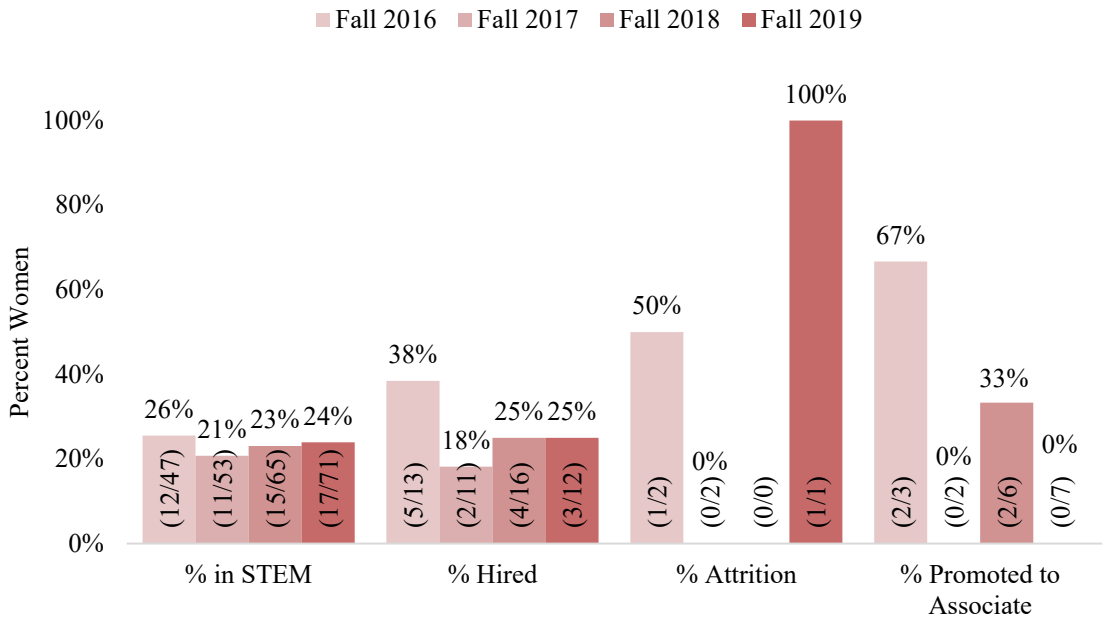


4.5 Summary Across Year 4 Faculty Indicators

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 fourth year are presented in Figures 9-14.

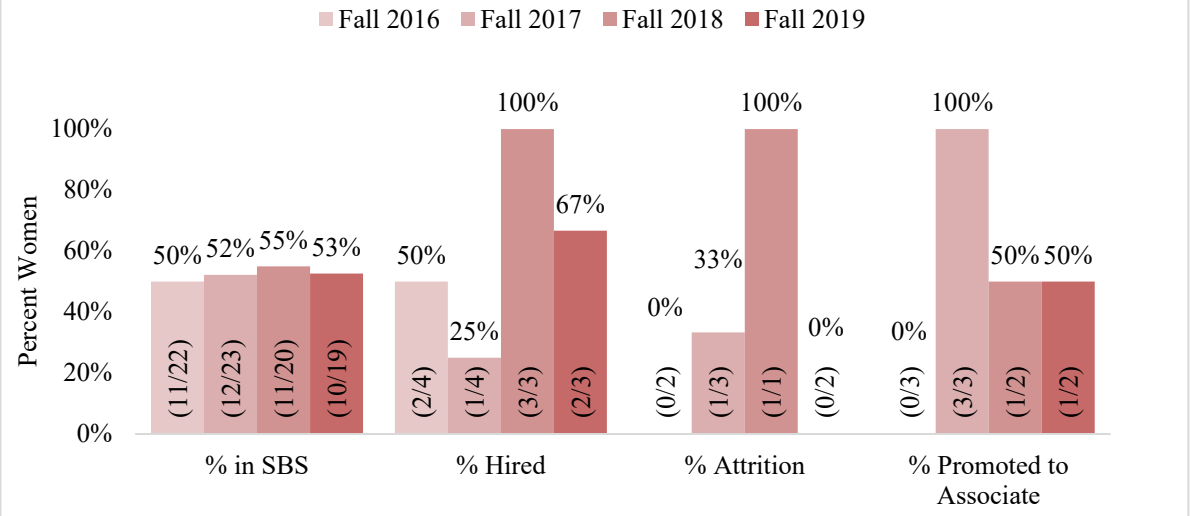
At the assistant professor rank, the percent of women hired in STEM was roughly equal to than their representation (Figure 9). Yet during Year 4, one woman assistant professor left the university and of the seven assistant professors were promoted to associate, none was a woman. While numbers overall are small, they suggest the university should remain vigilant in monitoring the retention and promotion of STEM women assistant professors.

Figure 9. Women Assistant Professors in STEM, by Year
(Number of women / total faculty in parentheses)



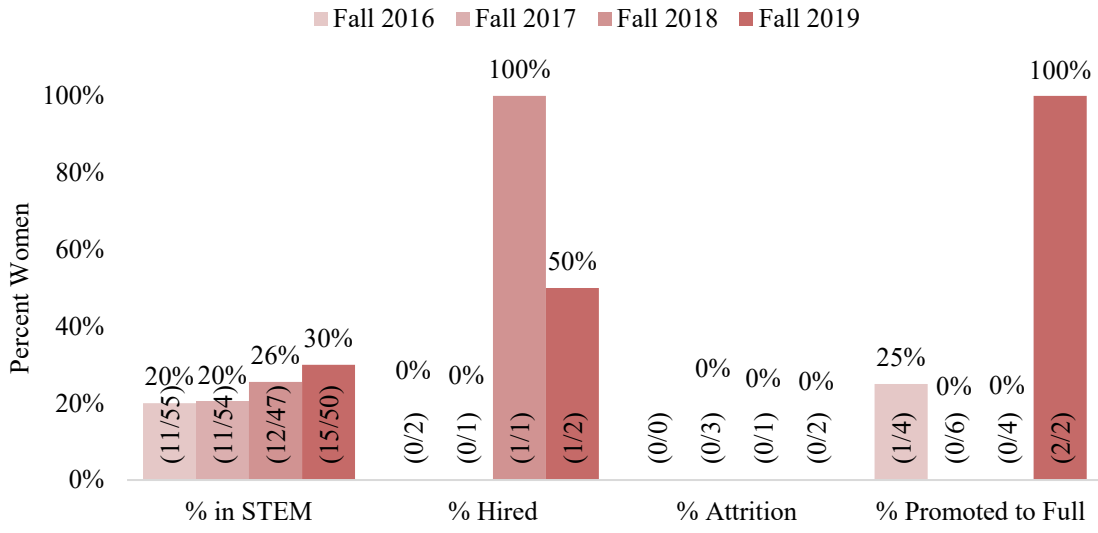
In SBS (Figure 10), 67% of assistant professor hires in Year 4 were women and the overall percent of women at that rank was 53%. No women assistant professors left the university in Year 4 (2 men did so) and one was promoted to associate professor (along with one man).

Figure 10. Women Assistant Professors in SBS, by Year
(Number of women / total faculty in parentheses)



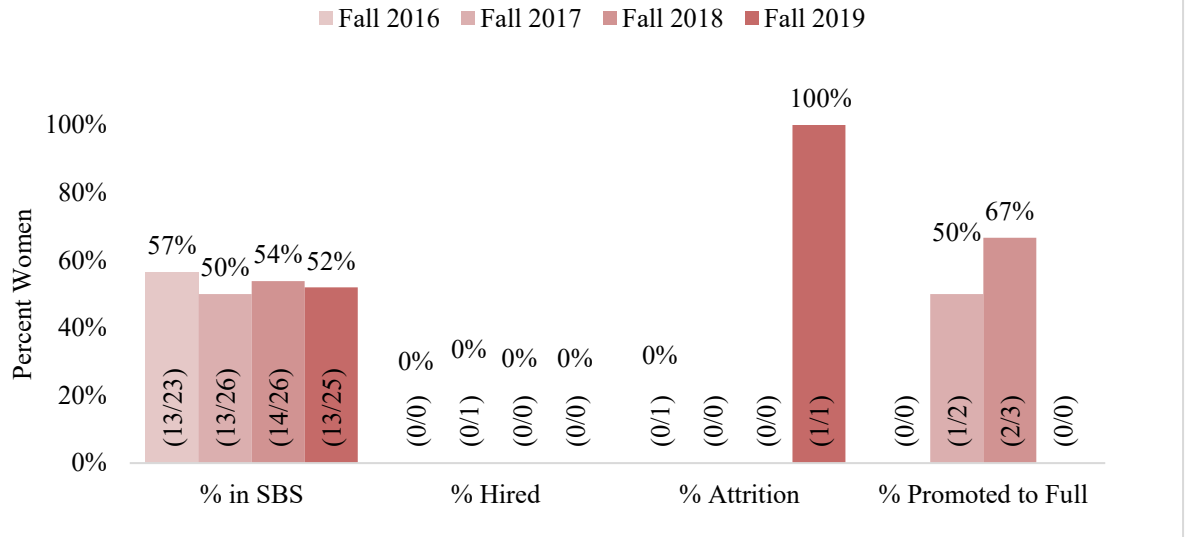
At the rank of associate professor, one woman was hired in Year 4 (and one man), while no women faculty left (Figure 11). Further, two women faculty were promoted to the rank of full professor (100% of Year 4 promotions).

Figure 11. Women Associate Professors in STEM, by Year (Number of women / total faculty in parentheses)



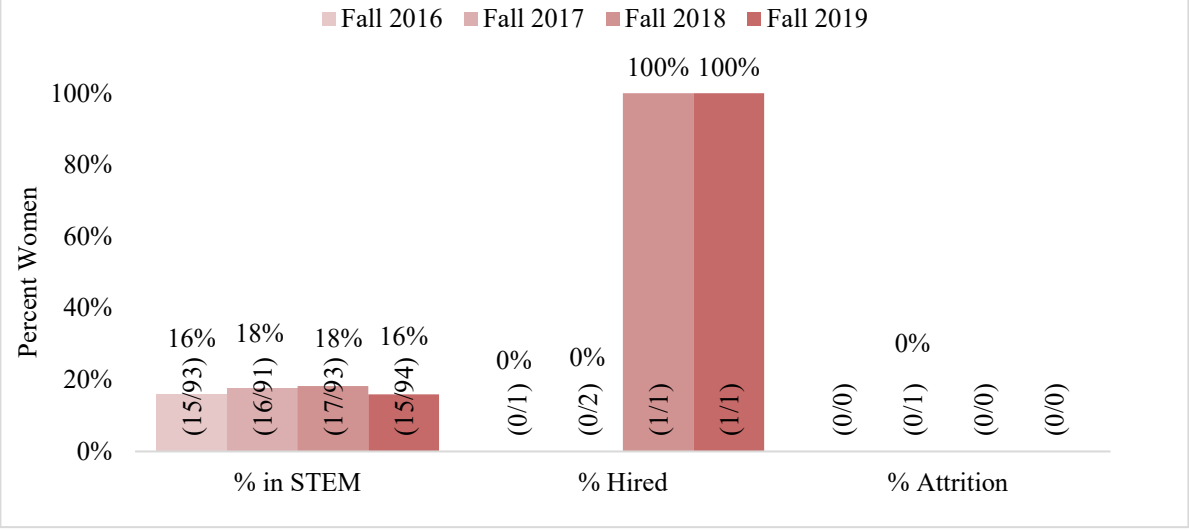
In SBS, where women comprised 52% of associate professors, there were no hires in Year 4 and one woman left the university. There were no promotions to full professor in Year 4 (Figure 12).

Figure 12. Women Associate Professors in SBS, by Year (Number of women / total faculty in parentheses)



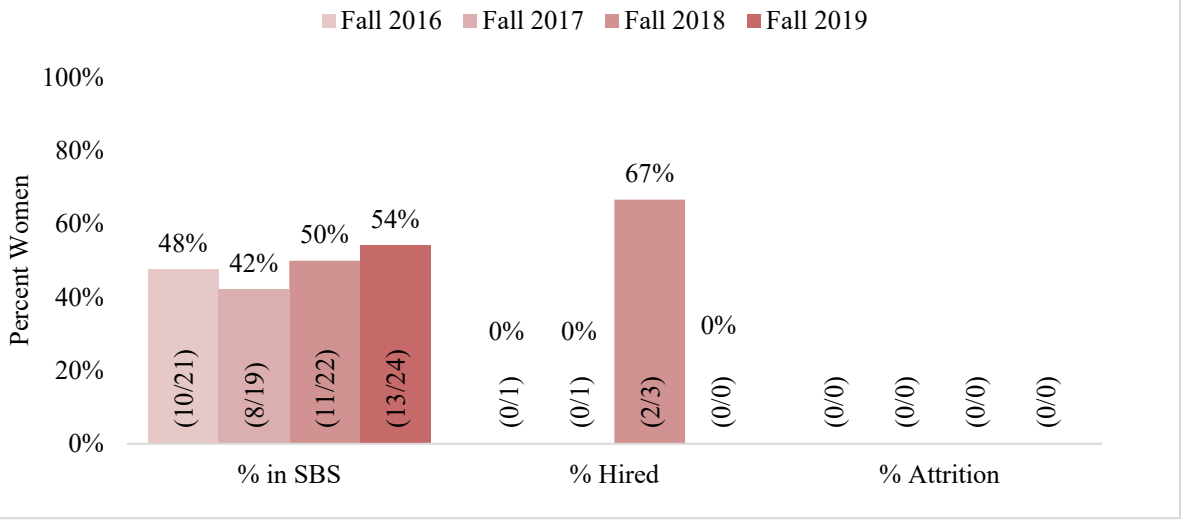
Among STEM full professors in Year 4, the percentage of faculty who were women was slightly lower than the previous year at 16% (Figure 13). One woman was hired into a full professor position, and there was no voluntary attrition.

Figure 13. Women Full Professors in STEM, by Year
(Number of women / total faculty in parentheses)



In SBS, women comprised 54% of full professors in Year 4 and the number increased from 11 in Year 3 to 13 in Year 4 (Figure 14). There were no hires in Year 4 in SBS, and across the ADVANCE program years, no SBS full professors voluntarily left the university.

Figure 14. Women Full Professors in SBS, by Year
(Number of women / total faculty in parentheses)

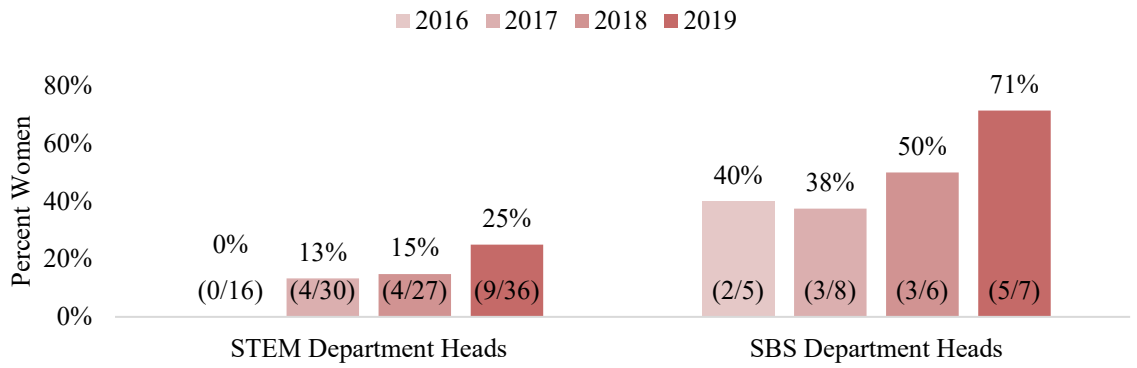


Continued monitoring of gender equity in faculty composition, hires, attrition, and tenure and promotion will allow the university to determine where strengths and challenges lie and will help inform efforts to improve diversity and equity for its faculty as a whole.

4.6 Women in Leadership Positions

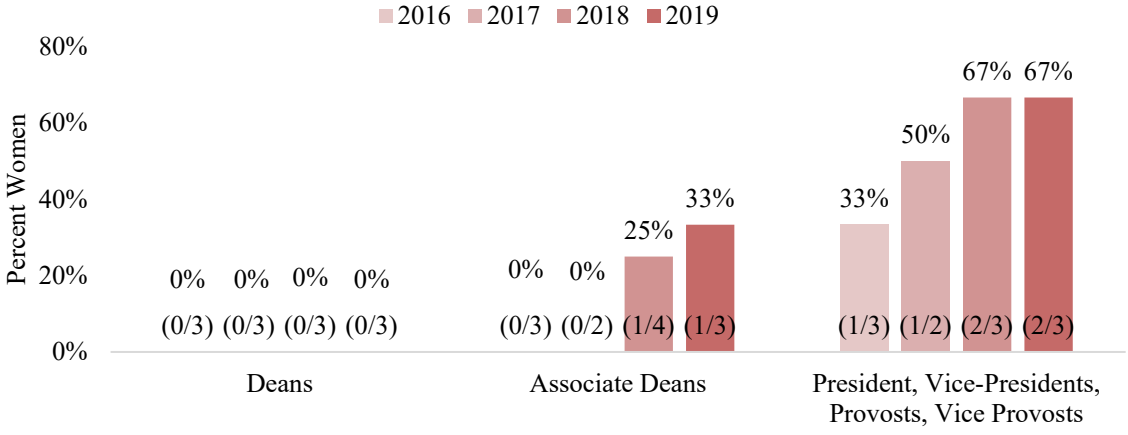
In Year 4, women faculty reached a 25% representation among STEM department heads (with nine women, Figure 15). In SBS, the share has increased from 50% to 71%, with five women department heads.

Figure 15. Percent of Women among STEM and SBS Department Heads, by Year (Number of women / total faculty in parentheses)



In Year 4, three women in STEM held other leadership positions, one as an associate dean and two in top leadership positions (provosts, presidents, etc.) (Figure 16). As of Year 4, there have been no women appointed to dean positions in STEM-designated colleges. Including all

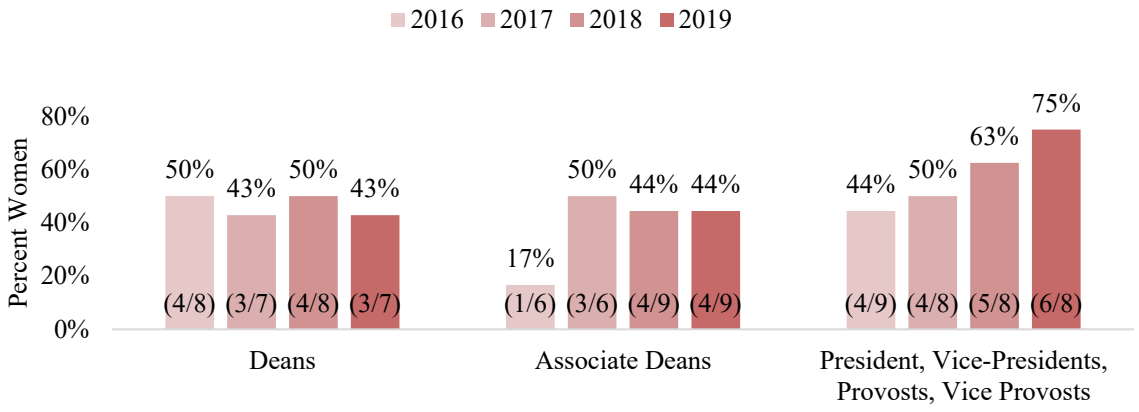
Figure 16. Percent of Women in STEM Leadership, by Year (Number of women / total in parentheses)



leadership positions from department heads up, in Year 4 women represented 27% of these roles, up from 4% in Year 1.

Across UML in Year 4 there were three women deans, four associate deans, and six vice-provost or higher positions (Figure 17). Overall, the share of women in leadership positions across fields has increased to 40% (from 25% in Year 1).

Figure 17. Percent of Women in Leadership, by Year (Number of women / total in parentheses)



5. KEY FINDINGS FROM YEAR 4 ACTIVITIES

5.1 Goal 1: Disrupt Microaggressions

Grant activities proposed to address Goal 1 include:

- **Survey feedback cycles on workplace climate data** to enable departments and colleges to raise awareness and also to help them set and track progress toward equity goals
- **Awareness campaign** to raise awareness of subtle biases that affect women in STEM
- **Bystander Training for faculty** facilitated by Equity Leaders to promote skills to address subtle bias and build broad-based support for reducing bias at interpersonal and institutional levels

5.1.1 Survey Feedback Cycles on Workplace Climate Data

The Gender Bias in Academia Index (GBAI) workplace climate survey, formerly called the Subtle Gender Bias Index (SGBI), was designed to measure the presence and impact of microaggressions experienced by faculty at UMass Lowell and to examine differences in gender-based experiences of microaggressions. The original SGBI was designed to assess women's experiences in academic settings. The WAVES team adapted it so that it could be used to assess

experiences of both women and men. The survey was administered in fall 2015, summer 2017, and summer 2019. The team plans to administer the survey again in 2021, but the timeline may be impacted due to COVID constraints.

In Year 4, WAVES completed analysis of the 2019 GBAI data. 327 faculty (57% of all faculty members) completed the 2019 survey. Relevant results from the survey showed varying perceptions based on gender, race, rank, and unit. For example:

- Faculty from the Colleges of Education and Health Sciences expressed less job satisfaction (60% moderately or extremely satisfied) compared to faculty in other units. College of Business faculty showed the greatest job satisfaction (83% moderately or extremely satisfied).
- Compared to male faculty, female faculty reported more gender bias and sexual harassment on campus. There was also an increase in reported gender bias toward female faculty from the 2017 to 2019 survey.
- Female faculty reported feeling devalued more often in university settings and feeling less perceived departmental belonging and department fairness. Among female faculty, there was a decrease in perceived institutional support from the 2017 to 2019 survey.
- Non-Asian faculty of color reported more social identities for which they had been devalued and feeling devalued more often in university settings.
- Associate professors and teaching faculty reported feeling more frequently devalued than any other faculty rank.

When faculty were asked in open-ended questions to describe recent experiences that made them feel valued, they most frequently mentioned respect and support from colleagues (N=50) and recognition and support from administrators (N=41). Faculty most often described lack of recognition, acknowledgment, and support (N=36) and negative experiences related to faculty rank or status (N=30) as events that made them feel devalued. Of the 48 faculty who provided comments related to feeling devalued due to intersectional identities, 23 respondents mentioned gender and race, ethnicity, or sexual orientation.

Faculty who had witnessed microaggressions were asked to indicate how they responded to the incidents. Of the 108 total comments, 30 ignored it or did nothing and 21 discussed the incident with colleagues, while only 9 reported the microaggression to the chair or dean and 6 confronted the micro-aggressor. These responses underscore the importance of the WAVES Bystander Training, which provides attendees with information about a wide range of intervention strategies and has been shown to increase participants' likelihood of intervention.

In Year 4, the WAVES team presented the GBAI survey results to the College of Education, executive board, and other university administrators. Additional presentations were cancelled due to COVID, but may occur virtually in Year 5.

Evidence of Impact: Interviews

According to feedback provided in interviews, the survey is an important tool to understand faculty experiences and bolster themes introduced in the Bystander Training:

> "The training was a good first step and I think it brought a great awareness. Then being reinforced with the survey, reinforcing the message that for some of our female women STEM faculty—I think their male colleagues were surprised that things were as challenging as they were. It helped to shine a light on the disparities, the load that women carry and often doing more service work, for example, and the lack of not feeling as embraced as they could by their colleagues."

When WAVES presented survey results showing the comparatively low job satisfaction of College of Education faculty, leaders took steps to follow up on the information and gather additional data to explore the reasons behind those rates. According to a stakeholder, after seeing the data a leader in the college said, "This seems like a call to me to be active and figure out what's going on." The results were useful to faculty, as well. An interviewee told the external evaluator that faculty who saw the survey results "became more aware that many of the feelings that they were having were not in isolation."

The survey also has the potential to reveal positive impacts that WAVES may have had on workplace climate, job satisfaction, and awareness at UML. However, one person said that the addition of questions about sexual harassment in the 2019 survey—and a greater focus on the topic across the university in recent years—may make it difficult to measure WAVES impacts independent of other factors. Given that possibility, it is important for the team to continue to utilize the GBAI data in conjunction with other data collection (see results of Effect Modifier Assessment in Section 5.1.3) and feedback mechanisms to draw conclusions about grant impacts.

Recommendations:

- The GBAI survey offers crucial insight into UML faculty job satisfaction, workplace climate, and, if conducted regularly, changes that occur over time. Consider ways to ensure that each step of the process (survey design, survey administration, data analysis, and dissemination) is institutionalized so that the university can continue to benefit from that information.
- Continue to disseminate data, especially unit-level data, to faculty and administrators to support discussions of climate and facilitate positive changes.

5.1.2 Awareness Campaign

WAVES launched a campaign in fall 2018 to raise awareness about microaggressions. In addition to increasing the campus community's understanding of the topic, the campaign helped highlight the Bystander Training, as that program also focuses on the topic of microaggressions.

Evidence of Impact: Interviews

Stakeholders indicated they thought the campaign was effective in raising awareness about microaggressions and promoting the Bystander Training. For example, a faculty member said,

> "We have some pretty visual branding of this orange mosquito, and it's everywhere. I know that they've done a lot of advertising, so I think that people are aware of the

> training. And if someone doesn't know what it is, I have a poster on my office door. I know that we're not on campus right now, but if someone would stop by and they weren't familiar, then that was a way to explain what the training was about and what microaggressions are."

An administrator also told the external evaluator that they had put up a poster to demonstrate their support for the training and raise awareness, which helped to increase the reach of the campaign. Given the person's leadership position, their support for the campaign also conveyed that the issue is important to the university as a whole:

> "They [WAVES] put together this poster about the Bystander Training and it has these mosquitoes on it. …These microaggressions are small, but they sting. I actually put that poster on my door… I hope that signals to everybody who comes into my office that that's very important. And then I also put it in our conference room. I put it where people could see it when they walk into the conference room, too. I felt it kind of branded it a little bit by doing that, and making people aware…I just feel like that made a big impact."

5.1.3 Bystander Training for Faculty

The purpose of the Bystander Training program is to promote skills to address subtle bias and build broad-based support for reducing bias at interpersonal and institutional levels. WAVES conducted seven interactive Bystander Trainings in Year 4, reaching a total of 238 participants since the program was launched. Trainings conducted in the fourth year of the grant centered around how to recognize instances of microaggressions and how to intervene in those situations. Equity Leaders led unique trainings at the Chancellor's Senior Cabinet meeting, the Manning Business School, and the College of Sciences, in addition to the standard trainings developed for UML that were open to faculty, administrators, and staff across the university. Due to the COVID pandemic, the training was conducted virtually for the first time beginning in spring 2020.

An important accomplishment achieved in Year 4 was the development of a new bystander workshop ("Bystander 2.0") that centers on race, ethnicity, and intersectionality to a greater degree. The WAVES team and Equity Leaders worked together to create the training program in response to Year 3 participant feedback regarding the need to address those issues and as a step toward a key programmatic goal of raising awareness of topics around intersectionality. At the time interviews were conducted, the WAVES team was preparing to launch the new workshop virtually in fall 2020.

WAVES is also making progress in its effort to disseminate information about its Bystander Training program. A member of WAVES presented details about the program at the Sociologists for Women in Society annual meeting in February 2020 and a poster was presented at the New England Psychological Association in fall 2019. The social science research team also worked to draft journal articles, currently under review, related to the workshop development and evaluation findings. (See Section 5.4 for more information.) In other dissemination efforts, the team hopes to share its training model, called "Get A (collective) GRIP," with other institutions that would like to implement a similar initiative and may launch a train-the-trainer program. In

addition to fulfilling the grant's dissemination objectives, the distribution of the training module may raise funds to help sustain the Bystander Training program at UML beyond the grant period. In fact, there has already been interest from external organizations in learning more about the workshop, including from John Hopkins University, Wichita State University, and the University of Puerto Rico. This enthusiasm suggests that efforts to raise funds by disseminating the training model could very well be successful.

Evidence of Impact: Surveys

To measure the impacts of the Bystander Training program on workshop participants, WAVES administered a total of four surveys (one pre and three post). The surveys were completed at the following time frames: upon registration for the training, immediately post-training, at six weeks after, and at twelve weeks. Participants used unique identifiers so that responses could be evaluated for changes over time. The survey asked respondents to indicate how many incidences of microaggressions they had observed and how often they had intervened. The survey conducted immediately after the training also asked participants about their satisfaction with the workshop, what they learned, and the most useful aspects of the workshop. Responses to the questions about incidences of microaggressions and intervention frequency were coded using measures primarily adapted from the Bystander Efficacy Scale[1] to determine respondents' likelihood of intervention and efficacy.

According to analysis conducted by the WAVES research team members, the training increased participants' likelihood of bystander intervention and bystander efficacy. These impacts were sustained at each of the three post-workshop evaluation points. Of the 124 participants who responded to open-ended questions about what they learned from the workshop, 67% mentioned strategies for intervening in situations where microaggressions occur and 41% described how the training raised their awareness about microaggressions. Respondents also indicated that they appreciated the opportunity to practice intervention strategies. Workshop attendees rated the Bystander Training extremely highly overall, as 99% of participants agreed that they would recommend the workshop to colleagues and 81% of those respondents strongly agreed. The WAVES team is continuing to analyze this data and hopes to disseminate results internally and externally.

Evidence of Impact: Effect Modifier Assessment

An independent group of researchers at the Center for Promotion of Health in the New England Workplace (CPH-NEW) at UMass Lowell utilized the Effect Modifier Assessment[2] to examine the impacts of WAVES, in particular the Bystander Training, and other contextual factors (modifiers) on institutional change. Results of this qualitative study that included three focus

[1] Banyard, V. L. (2008). Measurement and correlates of prosocial bystander behavior: the case of interpersonal violence. *Violence and Victims, 23*(1), 83-97. https://doi.org/10.1891/0886-6708.23.1.83

[2] Edwards, K. and Winkel, J. (2018). A method for effect modifier assessment (EMA) in ergonomic intervention research. *Applied Ergonomics*, 72, 113-120. doi:10.1016/j.apergo.2018.05.007

groups with 14 STEM faculty revealed that WAVES had had a positive and meaningful effects on changes in the workplace and climate at UMass Lowell since January 2017. Impacts were rated as "moderate" in magnitude for faculty in general and "major" for female faculty. Moverover, activities related to WAVES were rated as almost entirely (92%) positive.

Evidence of Impact: Interviews

The WAVES Bystander Training program continues to be one of the most recognized grant initiatives. Stakeholders credit the training with raising awareness about microaggressions and felt the program had caused a change in individual behaviors and the overall climate at UML:

> "People are probably more comfortable raising issues in group discussion than they might've been, about gender and about race and national origin and things like that…I think there's a higher awareness about microaggressions…and I think people [are] being a little more thoughtful and how they speak and how they interact. Certainly, that helps to create a more welcoming climate for everybody."

> "The greatest impact has been the Bystander Training and the way it has been able to…subtly shift at least awareness, if not thinking, among faculty and administrators. It's a slow awakening, not unlike the national awakening we're experiencing. So that's subtle, but when you're at a lot of meetings and working with people from multiple disciplines, you have opportunity to see that."

> "I think people are more aware and more careful when they speak, and hopefully are exercising better filters than they had in the past."

Interviewees also said that the Bystander Training empowered them to intervene in situations where they witnessed microaggressions, through providing them with specific strategies for intervention, showing them that it is everyone's responsibility to do so, and contributing to a culture that supports them in taking action. For example:

> "The workshop activities that they have done have been the most impactful for me, and I hope that would translate to my faculty, and thus overall to the college. I felt that I had a pretty good idea of when to recognize the microaggressions that are an essential part of the WAVES program, but I didn't have a full appreciation as to what kind of responsibility I had to respond to those when I was engaged in the conversation or that involved them, or even just peripherally observing that happening. That as an administrator…I have a responsibility to step in and diffuse the situation…that has been the biggest impact personally on me, is that I have a responsibility. And to give me the toolkit to exercise that responsibility."

> "My sense is there's a greater sense of safety in addressing microaggressions and intersectional issues that occur."

> "The two first things they do [in the training] is naming and framing, you've probably heard this before, but giving a name to things that people commonly experience but say,

> ‘Well, here's the word for that,’ and we can all talk about it and then framing it in the larger context of inequality and inequity. It made me feel, I don't know, it sounds silly because I'm [in my 50s], but I felt like I could speak up in situations. And it's not like I'm a shrinking violet, but it's hard to express it. I felt somehow freer, liberated, empowered to speak up.”
>
> “I think we all see that, and we might know what happening but not know what to do...They happen so fast and it's shocking. And the idea of the Bystander Training is it gives you a toolkit that you have in your mind so that when it happens, you're like, ‘Oh, I know what I should say.’ You have these strategies that you might even practice. And so it feels you're more prepared to deal with them.”

WAVES faced a challenge this year in adapting the Bystander Training to a virtual format to accommodate the university shutdown resulting from COVID-19. Feedback provided in interviews about that change was overwhelmingly positive. Equity Leaders told the external evaluator that participation rates for the virtual training remained high and the new format may have actually allowed some people to attend who would have not been able to do so in person, for example:

> “My understanding is this semester people are excited about the virtual format…because a lot of times…[it was] difficult to find times to get people in. So in that regard, in terms of sort of getting it out there, I think they've had a good impact.”

Another stakeholder noted that WAVES Equity Leaders created new videos with examples of microaggressions last year that the team was able to use for the virtual Bystander Training, which made for an easier transition to the new format.

When asked their opinions about the Bystander 2.0 workshop content, interviewees said that the training successfully introduces the concept of intersectionality. They anticipate that the program will be well received by participants, as it fulfills a request from previous attendees for more information:

> “It's a good starting point so that for the faculty members who are interested in learning more, that new training provides a way for them to do so."
>
> “I am not worried about the recruitment for the second workshop because after the old workshop we asked people what they want in terms of the follow-up activities. Having a workshop that address more complex issues actually is something that faculty want to have.”

Also noted in the comments above is that the Bystander 2.0 program is one approach to keep faculty who attended the initial training engaged with diversity and inclusion issues. In the past, WAVES has invited interested participants to become Equity Leaders; the team may want to consider other ways to keep in contact with enthusiastic participants, such as encouraging them to take part in other WAVES initiatives.

One challenge mentioned by interviewees is that because attendance is voluntary at most of the Bystander Trainings, the people who could most benefit from attending may not be the ones who choose to participate. An Equity Leader explained, "No one is forced to attend these trainings, so the people who need the trainings the most are not going to come." However, WAVES was asked to conduct trainings for UML communications and Student Affairs staff and, according to interviewees, there have been discussions about how to promote the Bystander Training at the new faculty orientation. Support from deans and other administrators to expand the training in this way provides WAVES an opportunity to reach faculty and staff who may not otherwise attend. Another option would be to incentivize participation by recognizing at the university level those who have completed the training, as this stakeholder suggested:

> "You could have on your faculty profile, like you could have a place where it's noted that you've taken these different trainings or whatever. That doesn't exist. I could put it on my CV, but the idea that we as a university have a way to sort of magnify who's done that."

There is synergy between the Bystander Training and the UML Pillar of Excellence for Global Engagement and Inclusive Community, so acknowledging faculty and staff who take part in the training could be a way for them to show that they are supporting the university's strategic goals in that area. This kind of recognition for attendees would also help promote the Bystander program itself.

Stakeholders expressed hope that the training would continue to be led by faculty rather than by Human Resources or administration, as exemplified by these comments:

> "People have a lot of respect if they see the faculty involved. People respect it much more…You don't want it to be an HR thing. You want it to come organically."

> "One of the strengths of the program has been it was created by faculty, it's delivered by faculty members, and so it doesn't feel like a thing that HR is making you do. I think it would be useful to keep that aspect of it."

> "Faculty are not going to take their cues or directions from HR. You know what I mean?"

In considering how to maintain the Bystander Training as a faculty-led initiative, interviewees noted that Equity Leaders currently receive a small stipend for their participation, but that funding may not continue beyond the grant period. An IAB member explained the dilemma:

> "Clearly a lot of people running this now are being paid on the grants, right, so that if this training is going to continue and they want faculty to run it, it's hard to ask people to continue to do heavy lifting when there's no funding for them."

Going forward, if necessary, rather than providing stipends to Equity Leaders, WAVES could work with university leaders to arrange course buyouts or ensure that faculty participation in this important program is counted as service.

Recommendations:

- Develop incentives for Bystander Training participation, such as formal recognition for attendees and counting Equity Leaders' time as service work for promotion and tenure.
- Engage in discussions with UML leadership about how to institutionalize the Bystander Training program as a faculty-led initiative.
- Continue to explore innovative ways to assess the impact of interventions at a systems level using multiple approaches (for example, the GBAI and the Effect Modifier Assessment)

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 to become the 50/50 Mentoring Program
- IDEA (InterDisciplinary Exchange and Advancement) Communities

5.2.1 50/50 Mentoring Program

The 50/50 Mentoring Program aims to bring notable scientists from other institutions to UML to 1) connect UML junior faculty with mentors in their field and 2) provide visible narratives about diversity of pathways to success through public lectures in which the speaker devotes about equal time between their own research and their personal career journey.

There were three 50/50 lectures conducted in Year 4 with a total of 134 attendees at the events (Table 1). One of the lectures, "Crook County: Racism and Injustice in America's Largest Criminal Court," led by a humanities faculty member, drew the greatest number of attendees of any 50/50 lecture conducted under the WAVES grant. The other lectures conducted in Year 4 featured speakers from STEM fields, but addressed diverse topics such as leadership, collaboration, and medical engineering research. The dean of the College of Fine Arts, Humanities and Social Sciences has helped sponsor the series since Year 3, which enabled WAVES to expand beyond STEM fields.

As in past years, Year 4 50/50 lecture attendees were asked to complete evaluation surveys immediately following the events. (These data are collected by the internal evaluator and findings were shared with the external evaluator.) Of the 134 attendees who participated in Year 4, a total of 71 completed evaluation surveys, with response rates varying between 41% and 86% for each lecture. According to evaluation survey responses, most participants were female (54%) and students (80%) (Table 2). Fourteen percent of respondents indicated they were faculty, comprising 10% assistant professors, 1% associate professors, and 3% full professors.

Table 1. 50/50 Mentoring Lectures Years 1-4

Grant Year	Date	Lecturer	Field	Lecture Title	# of Attendees
1	11/1/2016	Holly Yanco	STEM	*Sci-Fi to HRI: Designing the Robot Systems of Tomorrow*	36
2	2/15/2017	Robert Langer	STEM	*Biomaterials and Biotechnology*	62
2	4/4/2018	Thomas J. Webster	STEM	*A University Career in Biomaterials: Balancing Education, Research, Life, Personal Expectations, and Still Loving Every Minute*	19
3	10/3/2018	Katia Bertoldi	STEM	*Kirigami Inspired Metamaterials: from Morphable Structures to Soft Robots*	33
3	11/28/2018	Oksana Ostroverkhova	STEM	*Photophysics of Organic Materials: From Optoelectronics to Entomology and Lessons Learned in Between*	40
3	1/29/2019	Deborah Hung	STEM	*From Bench to Bedside: Perspectives on Infectious Diseases*	15
3	3/21/2019	Robert Michael Smith	Humanities	*Islands in the Stream: Singularity Art/ Sustainable Life for Post-Humanity*	40
4	11/5/2019	Linda Broadbelt	STEM	*Research Leadership through Collaboration*	38
4	12/4/2019	Nicole Gonzalez Van Cleve	Humanities	*Crook County: Racism and Injustice in America's Largest Criminal Court*	74
4	2/12/2020	He (Helen) Huang	STEM	*Restoring Motor Function in Amputees with Smart Prostheses*	22
				Total attendees:	**379**

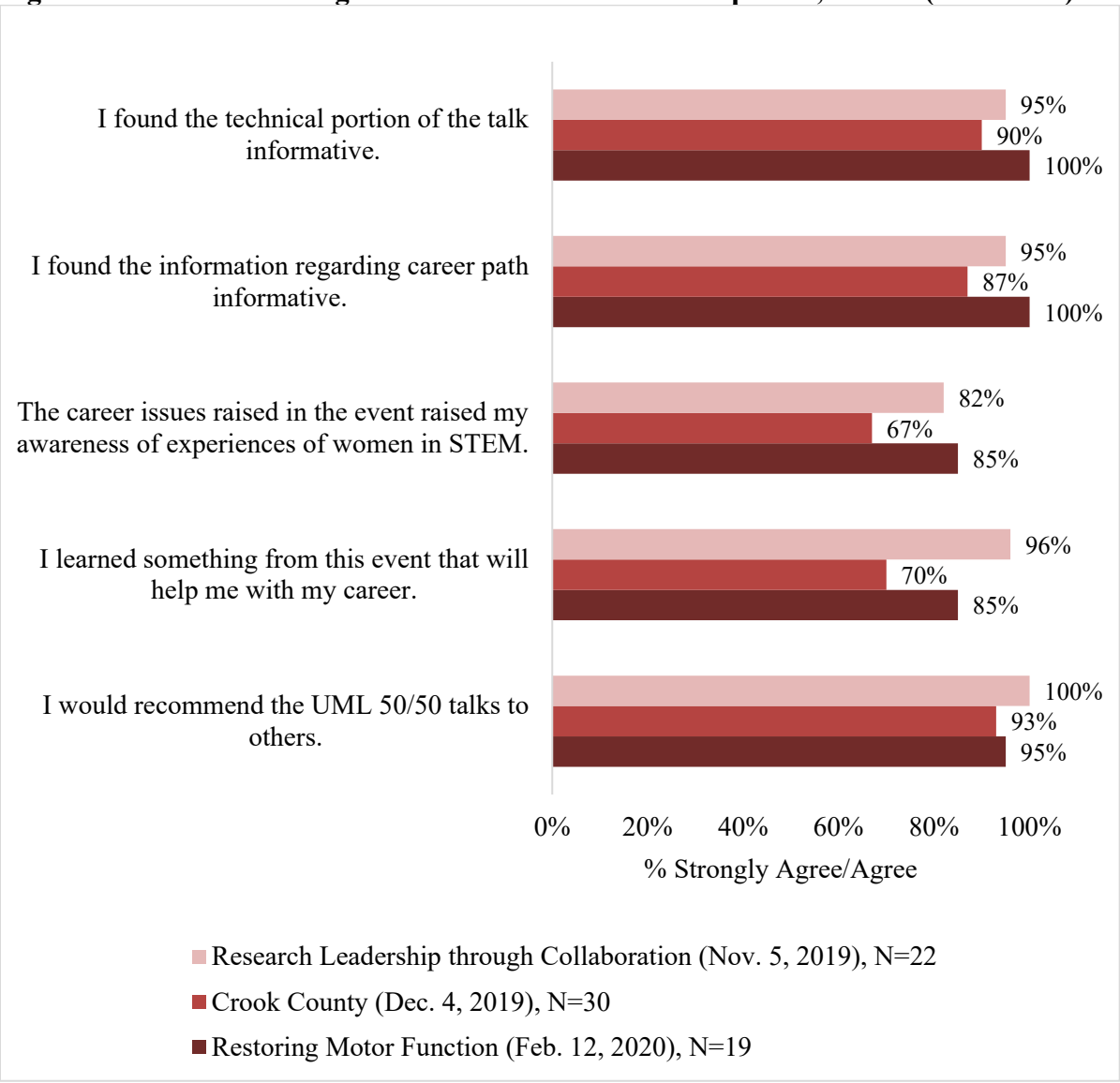
Table 2. 50/50 Mentoring Lecture Attendees, Year 4 (2019-2020)

Gender	% of Respondents
Female	54%
Male	41%
Did not answer	*6%*
Status	**% of Respondents**
Student	80%
Postdoctoral Scholar	1%
Assistant Professor	10%
Associate Professor	1%
Full Professor	3%
Did not answer	*4%*

N=71

As shown in Figure 18, most Year 4 50/50 Mentoring Lecture Series attendees found both the technical and career path portions of the talks to be informative and felt that they learned something from the event that would help them with their career. Given that 80% of attendees were students and 10% were assistant professors, it is particularly important that they felt that the information from the talk would be useful to them in their careers. Slightly fewer respondents agreed that the lecture they attended raised their awareness of experiences of women in STEM; however, that could either be because they already had high level of awareness or that the talk did not explicitly address those issues. Overall, participants rated the lectures very highly, with more than 90% of attendees agreeing that they would recommend them to others.

Figure 18. 50/50 Mentoring Lecture Series Evaluation Reponses, Year 4 (2019-2020)



Note: Not all respondents answered all questions.

Evidence of Impact: Interviews

The external evaluator conducted interviews in February to March 2019 and February to March 2020 with a total of six 50/50 Mentoring Initiative hosts from UML who participated in grant Years 1-3 (see Appendix C). The hosts were asked how they benefitted personally and professionally from their participation in the program and mentorship experience.

The professional benefits hosts described included building opportunities for collaboration and connections with the speaker that resulted in feeling comfortable asking for help with a promotion letter, an enhanced ability to ask questions about grant funding, and opportunities for mentorship generally. Other professional benefits mentioned were increased professional visibility, improvements in teaching, and the potential to expand their career networks. For example:

> "We are thinking to write a proposal together because we found that there was common ground that we could use to start working together, which was great. It didn't happen yet because of time, but we do have a plan to start working on a project together….I talk often to the speaker and so I feel like we have connected, also, on a personal level. So I know that even if these haven't happened yet, it's going to happen because of the way the interaction went. I feel it was a very successful meeting."
>
> "The opportunity to go to a different conference, which is not necessarily in the true field in which I work, it is very valuable because at least, in my personal opinion, you can find different ideas if you are exposed to what other people in other fields do."
>
> "[Through visiting the speaker's institution]…I was able to learn how to 3D sculpt in a more advanced way, but also see how powerful it was and how versatile it was as a medium that it was being used by scientists and medical students and all these other non-art students…I was able to bring that back to UMass Lowell and I rewrote two parts of two courses to incorporate that particular technology. My students are all using it now."
>
> "During the lab tour I introduced my work to her [the speaker] and she also gave me some suggestions, for example, where not to mount the type of [equipment] that we're using in the lab. She did not use the same equipment but used a similar one and told me that the other one is more stable, and we could contact the manufacturer to get a better [one]. She had some good suggestions, and I also shared with her about my work. I think she felt very interested and she asked some critical questions that were very helpful."

Hosts also mentioned personal benefits such as being able to identify with challenges that the speakers had faced along their career paths in trying to balance professional and personal responsibilities and dual career issues. Hosts said that they appreciated receiving information and feedback from someone with additional life experience. Those interviewed said that the university also benefits from the visits because they spotlight UMass Lowell and provide opportunities for students to see role models and engage directly with the speakers. For example:

> "I wanted our physics students to see what the career is like in physics academia. And then particularly if you're a female, whether you have any particular challenges in these careers because females are very underrepresented in physics…I think seeing the role model, the successful female professor…several [grad students] did mention that it was a very informative and interesting talk."

In other interviews with the external evaluator, stakeholders said that "a lot of faculty members know about" the 50/50 lectures, which shows that WAVES has been successful in promoting the talks. However more than three quarters of Year 4 participants were students. An interviewee commented that the talks are useful to those graduate students:

> "The graduate students seem to be the people who come most and [are] also the ones who get the most out of it. So even though that's beyond the scope and the purpose of WAVES, I think that has been a really added benefit."

Another stakeholder suggested that that interest from graduate students could mean that WAVES may want to work with the Vice Provost for Graduate, Online and Professional Studies to help sponsor the program:

> "Even though it's targeted at young faculty, I really think it benefits graduate students as much as anybody...It might be, then, that they [WAVES] could co-sponsor it with Graduate Studies and the person that comes, the guest speaker would have a session just for graduate students."

It is also possible that Graduate, Online and Professional Studies could be an apt institutional home for the lecture series in the long term.

Alternatively, because UML women faculty who host a 50/50 Scholar benefit from participating in the program, it could be housed within the Office of the Provost and Vice Chancellor for Academic Affairs in the future, as proposed by this IAB member:

> "I think the 50/50 lecture program could easily be situated somewhere else, such as within the Provost's Office, because it meets goals that have been identified that are the responsibility of the provost: nurturing and retention of women. And faculty in the sciences and engineering is definitely part of what the provost should sponsor and the current provost certainly wants to."

In general, the 50/50 Mentoring Initiative is especially beneficial for UML junior faculty and students. Despite those benefits, stakeholders were unsure whether the program will be continued beyond the end of the WAVES grant because it will require ongoing funding not currently guaranteed.

Recommendations:

- Engage in conversations about institutionalization with potential sponsors of the 50/50 Mentoring Initiative.
- Because the 50/50 Mentoring Initiative evolved from a 50/50 Lecture Series (that predated WAVES), many campus stakeholders associate the program with the public lecture and are unaware that the focus has expanded to include mentoring from a visiting scholar. WAVES should consider expanding communication around its new dual foci to the campus community.

5.2.2 IDEA Communities

InterDisciplinary Exchange and Advancement (IDEA) Communities were implemented to support innovative research and interdisciplinary collaboration around a theme at UMass Lowell. The five faculty selected to participate in the program received project funding, participated in interdisciplinary project groups for their chosen topics, and took part in monthly leadership development sessions.

IDEA Communities were not pursued in Year 4 and are not currently planned for continuation by WAVES. The WAVES team determined that, while valued by participants, the communities were not specifically targeted to faculty women in STEM and thus not well aligned with the specific goals of the grant.

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 Departmental 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 ("personnel protocol") and to analyze and promote gender equity in service assignments.

This year WAVES continued to disseminate the personnel protocol and promote its use. Members of the team presented information about the tool and trained faculty and administrators in how to use it, including faculty in the Business School, members of departmental promotion and tenure committees, and chairs of college personnel committees.

In Year 4, WAVES efforts around service equity moved away from promoting the use of Digital Measures to track the time faculty spend on service activities; instead, the team worked directly

with department chairs to identify and address inequities as part of the Departmental Accountability Initiative (discussed in Section 5.3.2).

Evidence of Impact: Interviews

In interviews, stakeholders said that committees had been using the personnel protocol in their deliberations, as noted by this administrator:

> "We brought the personnel protocol training to our college for tenured faculty, because those are the faculty members that participate in the department personnel committees [DPCs] and the college personnel committees [CPCs]…I think that it definitely opened their eyes. I know that they integrated what they learned and I know it was reflected in the work of the DPCs and the CPCs."

The administrator added that the protocol "definitely set the tone for the department personnel committee and the college personnel committee discussions last year."

Another university leader told the external evaluator that faculty attitudes toward the protocol had shifted from one of resistance to embracing use of the tool and wanting to go even further to ensure fairness and equity in decision making:

> "I can even remember back to when…this whole thing started, that it was a bit of a, 'Why are you telling us how to run a meeting?' essentially, right? And now we've gotten to the point that it's not resistance it's, 'Okay, is this enough? How do we do better?'…So to me, that's progress, in that it's not questioning why we're doing this, it's, 'All right, are we doing enough? Are we taking it a step further?'"

This change signals an important impact of the grant on the functioning of personnel committees at UMass Lowell.

Recommendation:

- Continue to promote the personnel protocol and track its usage. Work with deans to encourage committees to utilize the tool, incorporate its use into the Departmental Accountability Initiative, and mention it at Bystander Training sessions and other WAVES events as a way for faculty to promote diversity and equity at the university.

5.3.2 WAVES Departmental Accountability Initiative

UMass Lowell departments that choose to participate in the Departmental Accountability Initiative work with the WAVES team to create a Departmental Equity Action Team, conduct climate surveys, and establish goals and action plans for their departments. Five departments have agreed to participate in the initiative, including Biology, Chemistry, Electrical and Computer Engineering, Plastics Engineering, and, most recently, Physics. Biology made significant progress through the administration of its first survey and a second, follow-up survey in fall 2020. The department intends to adopt recommendations made by WAVES.

The Physics department is complementing its participation in the WAVES Departmental Accountability Initiative with involvement in the American Physical Society Inclusion, Diversity, and Equity Alliance (APS-IDEA) Network, which seeks to make physics a more inclusive and diverse field. Department chair Partha Chowdhury has worked with WAVES to gather data and strategize how improve diversity, equity, and inclusion within the Physics department, which both fulfills the APS-IDEA requirements and demonstrates commitment to the Departmental Accountability Initiative.

Evidence of Impact: Interviews

Department chairs involved with the initiative told the external evaluator that the departmental survey results provided them with valuable insight into the current climate in their departments. One chair, for example, said, "Based on the first survey we became aware of some issues that I think we may not have known." This information can be particularly useful for faculty who are new to the department chair role. Another chair looked forward to utilizing the results from multiple surveys to measure changes in departmental climate:

> "My idea is to use the ADVANCE teams, the departmental initiatives, to get a good benchmark now. And then as we move forward, see if and how we are improving our climate in this regard."

A positive impact resulting from the initiative already occurred in Year 4. A chair told the external evaluator that because of the faculty feedback they received as part of the survey component of the Accountability Initiative, their department made changes to improve the experience of junior faculty, such as offering opportunities for them to give talks, posting information about their accomplishments in department common areas to help boost their professional profile, and implementing service rotations to lessen the burden of service. The chair said of that work, "It's made changes in the department. It helps us look at things a different way."

Two chairs said that they want to involve faculty in the process to evaluate their departmental survey results and then develop action plans, because including them is likely to increase buy-in for proposed changes. They explained:

> "I want to make a small faculty team here that is actually naturally open to these types of initiatives and build a sub-team. That way it will not be all just me telling them what to do. It'll be more grassroots. That's the strategy I am going to use. Because usually when the chair says something, 'Oh, another initiative from the chair.' If there are three or four faculty members who are really interested in this initiative, I could make them a sub-committee and then let them bring up new ideas, and that will be a much better chance of success."

> "It gives other people importance. We made sure that everybody got their input."

Departments can also increase buy-in for the Departmental Accountability Initiative by aligning their goals and actions with related efforts, as in the case of the Physics department's work with

APS-IDEA. The overlap between the two initiatives allows the department to benefit from the resources and guidance of both WAVES and the APS-IDEA Network, including providing Physics with comparison data, as noted by this stakeholder:

> "We can learn from others just like other can learn from us. It's a network [APS-IDEA] and I can't remember how many universities or departments are part of the network, but I know there was a finite number. You have to apply and be invited to it to be accepted into it. So that was very good because I think that would help to get even, where do we stand with comparison to other departments?"

Other synergistic activities mentioned by interviewees include the UMass System's Academic Quality Assessment and Development (AQAD) evaluation process and UMass Lowell's Council on Social Justice. An administrator who had been involved with a recent AQAD evaluation said that some components of that process overlap with those in the Accountability Initiative, which makes it easier for chairs to participate in both:

> "We already have a system to academically review the departments [AQAD]. And we have it on the schedule, right? They do it every five years. And since it's a time-consuming process to do this process that the WAVES has been working through, why don't we start merging some of these things? Because that way we would be able to sustain it and review it on a regular basis."

Another person said that a link between the Accountability Initiative and the newly established Council on Social Justice, created by the chancellor to "strengthen a culture of diversity and inclusion at UMass Lowell," could help support sustainability of grant activities:

> "If they [WAVES] can tie into the council effort, then it might be able to utilize the momentum from the council efforts to extend beyond the remaining one year of WAVES, because it addresses a lot of the same things that the council is trying to address."

These comments suggest that there are avenues to promote the institutionalization of the Accountability Initiative, but the COVID pandemic has impacted priorities across the university. A member of the WAVES team acknowledged that it has been challenging to maintain momentum for the Accountability Initiative when faculty have so many other demands on their time:

> "COVID, in so many ways, has shifted people's focus…and it's also taken a lot of chairs' and faculty's time to figure out how to reconfigure everything. I don't have time for anything that's not directly related to operations—like the bare minimum. That's the kind of feeling that I'm getting from people. I'm sensitive to that, but I'm also like, 'We have to keep on.' We have to keep on ourselves with that stuff, too, or else it ends up eroding the work that's been done."

The Departmental Accountability Initiative is labor intensive for both WAVES team members and departments, but improving department culture and service assignments is essential to

achieving the goals of the grant. The initiative may also lead to additional attention to other areas, such as racial and ethnic inequities, thus should remain a priority for the upcoming year.

Recommendations:

- Gather information about departmental actions resulting from participation in the Accountability Initiative that can be used to generate a list of best practices and document grant impacts.
- Work with departments that have currently signed on to participate in the initiative to consider how they can institutionalize useful elements of the program beyond the grant period, such as conducting regular surveys of their faculty and forming a faculty committee to assess results and develop action plans.

5.4 Social Science Research

The purposes of the social science research agenda are to: (1) provide new nuanced and more ecologically valid insights into microaggressions faculty experience and their consequences; (2) examine the extent to which individuals witness other faculty experiencing microaggressions and whether (and how) they intervene as bystanders (3) expand understanding of how gendered microaggressions are experienced in the context of intersectional racial identities; (4) extend research on effective intervention strategies

Three related studies, grounded in daily diary methodology, are being conducted:

> Study 1: *Understanding microaggressions: Incidence, impact and intersectionality in a national sample*: Employs daily diaries to track occurrences of microaggressions (witnessed and experienced) and their relationships with job satisfaction and well-being
>
> Study 2: *Understanding microaggressions at UMass Lowell* (in conjunction with our bystander training initiative): Employs daily diaries to track occurrences of microaggressions (witnessed and experienced) and bystander action (or inaction) at UMASS Lowell. Includes the ability to track responses from faculty who have participated in bystander training and those who have not.
>
> Study 3: *Impact of daily diary evidence 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

The WAVES team administered the Daily Bias Survey beginning in fall 2017 and continuing for four semesters. A total of 165 faculty participants from across the United States were asked to respond to daily survey questions for a period of 30 days. Demographic information about the participants indicate that they were 71% White, 81% female, and represented the fields of social sciences and behavioral sciences (34%), engineering (13%), and biological sciences (10%), as well as other fields. In order to assess the frequency and impact of microaggressions, participants were asked to indicate whether they had experienced anything at work that made them feel

slighted or devalued and the context of the incident, and to rate their mood, work effectiveness, productivity, institutional investment, and job satisfaction.

Key findings from the Daily Bias Survey study include the following:

- Faculty of color were 99 times more likely than white faculty to experience race-based slights.
- Untenured faculty were 5 times more likely than tenured faculty to experience rank-based slights.
- Women faculty were 2.5 times more likely than men faculty to experience gender-based slights.
- Identity-based slights led to significant reductions in faculty productivity and effectiveness.

Initial results from the Daily Bias Survey were explored in a journal paper, authored by the WAVES team, that is currently under review. This study provides important insight into the way in which microaggressions are experienced by faculty members and the differential impact on members of different groups, as well as how microaggressions impact job performance and satisfaction. The results also underscore the importance of the WAVES Bystander Training at UML, which attempts to mitigate the negative impacts of microaggressions and to reduce their occurrence. WAVES plans to administer the Daily Bias Survey again in 2020-2021; those results will be examined in subsequent external evaluation reports.

In addition to the Daily Bias Survey, in Year 4 the WAVES social science research team made progress in drafting the results of its research connected to the Bystander Training program. The team surveyed 193 members of the UML community who participated in Bystander Training between fall 2018 and fall 2019, including 25% of UML full-time faculty. The group was 58% female and 84% White, and of the faculty respondents 21% were full professors, 20% associate, and 16% assistant. Attendees were asked to complete four evaluations: a survey prior to the training ("pre-survey"), a survey immediately following the training ("post-survey"), and surveys at 6 weeks after the training ("6-week post-survey") and 12 weeks following the training ("12-week post-survey"). Response rates were as follows:

- Pre-Survey: 69% (N=134)
- Post-Survey: 67% (N=130)
- Pre- and Post-Survey: 51% (N=98)
- 6-Week Post-Survey: 24% (N=46)
- 12-Week Post-Survey: 17% (N=33)

The evaluation surveys measured the participants' likelihood of bystander intervention, self-efficacy (confidence in engaging in intervention actions), whether they would recommend the workshop, and which aspects of the workshop were the most useful. (See Appendix A.)

Survey results indicate that following the Bystander Training workshop, participants were more likely to intervene and had greater confidence in their ability to intervene in situations where they witness microaggressions. These results were relatively unchanged at 6 and 12 weeks following the workshop, suggesting that the impacts lasted beyond the short-term.

When asked to provide open comments about the most significant things they learned from the workshop, 67% mentioned strategies for intervening when they witness microaggressions and 41% said that the training raised their awareness of microaggressions. In addition, 68% stated that the most useful aspect of the workshop was the opportunity to practice strategies for intervening. Finally, in a sign that participants viewed the bystander workshop favorably overall, 99% of respondents strongly agreed or agreed that they would recommend the training to others.

The team disseminated results from the Bystander Training program at the 2020 Sociologists for Women in Society annual meeting, a poster presentation at the New England Psychological Association in fall 2019, and numerous journal articles currently in progress or under review.

WAVES is also conducting interviews to measure the impacts of the training and to better understand how to utilize Equity Leaders as change agents. That data will provide important information to assist in planning for institutionalization.

Recommendation:

- Prioritize the dissemination of research findings, which provide insight into programmatic impacts, the extent to which microaggressions impact job satisfaction, and overall institutional climate.

5.5 Other Key Findings

1. *Internal Advisory Board*

The WAVES Internal Advisory Board (IAB) is comprised of faculty, staff, and administrators from across the university, including academic leaders such as the Dean of Science and the Dean of Fine Arts, Humanities, and Social Sciences. The primary function of the board is to provide feedback on WAVES initiatives and to help disseminate information about programmatic activities. In grant Year 4, Dr. Punnett (Distinguished University Professor and Co-Director of the Center for the Promotion of Health in the New England Workplace (CPH-NEW)) assumed the role of chair of the IAB. This shift in leadership marks transition of the IAB outside of the WAVES core team and signals broader institutional engagement necessary for supporting sustainability.

According to comments provided in interviews with the external evaluator, members of the IAB themselves feel that the board is well utilized, but others believe they could play an even greater role. One person on the WAVES team commended the IAB, “They're very responsive to anything we asked for to share about the trainings or things like that. So they're great,” but added that “one of our biggest challenges is making good use of their time. Because we have this big group of advocates and they're willing to do things, sometimes it's maybe a little hard for us to think of things for them to do.” When asked whether the group had been asked to discuss possible avenues for sustainability for key initiatives, an IAB member responded, “That's something actually I feel like we've talked about the whole time through and not waiting till the end.” One way to further engage the board would be ask them to help promote impacts and successes that have resulted from the grant work, such as by sharing them with their

departments, colleges, and units. This dissemination will also help with generating support for institutionalizing key programs.

2. *Support from Upper-Level Administration*

Stakeholders feel that there is strong, visible support for WAVES from the university leadership. Examples of interviewee comments to that effect include the following:

> "We are fortunate to have very strong leadership, straight up, down, from all the way up to the chancellor and our vice chancellors for research and so on. They're all part of this initiative and they have supported the whole program wholeheartedly."
>
> "There's absolute buy-in from administration. Jacquie Maloney, the chancellor, everybody buys into this very well."
>
> "The provost is incredibly supportive of what we do. He invites us regularly to do things. For example, we recently, they had a P&T workshop and we have a personnel protocol that we sort of recommend…and I presented that in multiple forums last year and once again, was asked to present it again this year…I think that administration sees the value."

In Year 4 the WAVES team had quarterly meetings with both the chancellor and provost to keep them apprised of grant activities. This ongoing communication will be particularly important as the team shifts efforts to focus on long-term sustainability.

3. *Sustainability and Institutionalization*

Sustainability and institutionalization are a focus of the team's work in the grant's fifth year. When stakeholders were asked in interviews which WAVES initiatives they felt would be important to sustain beyond the grant period, the Bystander Training program was mentioned most often. One interviewee said that they hoped the program would continue because it had been "incredibly impactful." Other activities mentioned included climate surveys, the Departmental Accountability Initiative, and the personnel protocol.

Stakeholders acknowledged that a key barrier to continuing any of these initiatives would be securing funding beyond the grant period, especially due to institutional budget constrains resulting from the impact of the COVID-19 pandemic, as expressed in this comment: "For all the opportunities COVID has offered, it certainly has introduced challenges. And I'd say the…financial piece is probably the biggest." The dissemination of the "Get A (collective) GRIP" bystander training model, currently being explored by the WAVES team, could provide a potential path to creating a self-sustaining program, as noted by these interviewees:

> "We're working on the train-the-trainer and hoping that that's a lucrative possibility for us, because beyond the personnel and where we're seated, the financial aspect of the sustainability is huge."

> "I would love to see them [WAVES] figure out how to do that in a way that they can really more broadly share all the hard work they've done to develop that [bystander] program, and then have other people utilize and recognize those tools. That's one area where I think that there's an opportunity and a benefit."

There were a variety of opinions about what form institutionalized programs should take once the grant ends. Some said that they thought activities could be rolled into existing offices such as the Center for Women and Work (CWW), the Provost's Office, or even entities within colleges and departments:

> "There needs to be a presence in the Provost's Office as opposed to just an HR function…because to me it works right into faculty development. It takes it a step further because it's also climate and all these other things that we want to do equitable."

> "The Provost's Office doesn't have any particular expertise in this area—the CWW faculty and staff do. There's some overlap between the centers, faculty associates, and those who've gotten involved in that program. I think that that's a really secure place for sustaining and growing it basically with a feminist and intersectional understanding. A concern if it moves into an administrative unit is that even if it were sitting at the Provost's Office, for example, I think it would be seen as naturally an HR activity, and I'm not sure that there'd be the same trust and I'm not sure that it would be run with the same goals."

> "I'm more inclined to say that it's not actually an office that we need, but it's programs that exist across the entire campus. Because we've got to be a little bit more specific. What's done in science and engineering might be different than what could be done somewhere else. Even within a college, what's needed in one department might be different in another. So I'm tempted to say I would like to see not a central office, but more locally as things get into the colleges and even the departments at some point."

Another person suggested that the faculty climate survey ought to continue to be administered and that within the Office of Strategic Analysis and Data Management would be a possible institutional home:

> "We're trying to say it's important for us to continue this because we have this great survey that was created and we'd love to continue it over the years. Like [the University of] Michigan, for example, they have years and years of comparison data. We're up to three now, but it would be great to continue that. And so somehow maybe in a data office or institutional data or something like that, I feel like that could be a home."

A different stakeholder noted that the connection between WAVES and the UMass Lowell Council on Social Justice and Inclusion, charged with developing action plans and coordinating activities related to the university's Diversity, Equity and Inclusion and Gender and Sex-Based Discrimination Prevention task forces, offers a path to amplify WAVES initiatives and incorporate them into institutional priorities:

> "The chancellor set up a university-wide council with two task forces underneath it to really implement a lot of the recommendations that were made by various committees for the university in terms of things related to social justice and inclusion, which of course connects well with a lot of the programming that WAVES has developed. So, there's definitely university structure that this integrates well with."

Conversely, a number of interviewees indicated that they hoped WAVES would remain a separate office at UML to maintain its focus on faculty diversity, equity, and inclusion issues as distinct from Human Resources or the university administration:

> "I would really, really like them to be a separate ADVANCE office. In part, because my experience at UMass Lowell is that everything has been swallowed up into the giant HR, which is far more interested, maybe by necessity, in protecting the university from shame or scandal. I'm not at the least bit interested in cultivating trouble, but I think we need to be able to stand alone from protecting the university and speak directly to issues as they emerge, and so an ADVANCE office would allow that, whatever that might look like on campus…I do think that a separate entity would be ideal."

> "Having a WAVES as an important initiative for the university as a separate entity for diversity and inclusion with equity and justice, I think it adds a lot of credibility."

> "If we can have an initiative that's faculty led as opposed to administration led, it would be great."

It will be important in the upcoming year for WAVES to continue to engage in formal discussions around sustainability and institutionalization among the team and with the Internal Advisory Board, Provost's Office, and institutional partners. Areas that should be examined include each initiative's progress toward its objectives, outcomes and impacts, projected costs or funding models, and an evaluation of the advantages and disadvantages of different structures for sustainability. Ensuring that there is accountability and that someone is charged explicitly with addressing faculty-level gender equity is essential.

6. Conclusion and Recommendations

The University of Massachusetts Lowell WAVES grant made impressive progress thus far. The Bystander Training program and related research are cornerstones of the grant's work to improve institutional climate and change individual behaviors, and the Departmental Accountability Initiative has the potential to make lasting changes in participating departments. The team's research areas are propelling change at the university with a data-driven approach and providing opportunities for a continued trajectory of research and publications.

Year 4 Strengths:

- The number and percent of women associate professors in STEM increased from 20% in Fall 2016 to 30% by 2019. Women's share of full professors in SBS increased from 48% in 2016 to 54% in 2019.
- There were positive increases in women's representation in leadership positions. In 2019, 25% of STEM department heads were women, up from 0 in the 2016 baseline, and the percentage of women SBS department heads increased from 40% in 2016 to 71% in 2019. Across all of UML, there were three women deans, four associate deans, and six vice-provost or higher positions (54%) in 2019, an increase from 40% in 2016.
- There is clear, meaningful support for WAVES from upper administrators.
- A data-driven approach offers insight into institutional climate, faculty experiences, demographics, hiring, tenure, and promotion.
- The Bystander Training program is a well-recognized, impactful, faculty-led initiative. Research findings demonstrating its effectiveness can be used to further promote the training, both within UML and to other institutions considering implementing a similar program.
- Bystander 2.0 extends the original training with additional focus on race, ethnicity, and intersectionality.
- The various social science research studies are advancing knowledge about microaggressions, their impacts, and ways to intervene. These findings advance both practical and theoretical importance.

Year 4 Challenges:

- Although there have been improvements in the representation of women in top leadership positions at UML (described above), women are still underrepresented in some STEM leadership positions (for instance, all STEM deans are men).
- Because the Bystander Training is voluntary, faculty who could most benefit from participating may not choose to attend.
- The Departmental Accountability Initiative requires a large investment of time and effort by department chairs and members of the WAVES team.
- As to be expected, WAVES has experienced COVID-related challenges pertaining to needing to reorient material to a virtual format, overall limited bandwidth of faculty and administrators, and institutional budget impacts.

Key Recommendations:

The following recommendations should be considered to strengthen existing efforts and assist with movement toward sustainability and institutionalization:

- **Prioritize activities and programs for sustainability.** Based on the findings presented in this report, the Bystander Training is the team's signature programming with documented impacts and should be a priority for sustainability. It should be maintained as a faculty-led initiative and adequate support for Equity Leaders is essential for its continuation. There are other impactful (or potentially-impactful) WAVES initiatives that can be priorities for sustainability.

- **Develop a detailed sustainability plan to guide discussions with the Provost and other key institutional stakeholders.** The plan should include possible institutional structures for sustainability, costs, and identify systems of accountability. Attention should also be given to persons, processes, or resources that are necessary to support those initiatives and monitor change, including data collection and analysis (for example, the GBAI survey). The capacity to maintain a data-driven approach is essential for supporting sustainability.
- **Continue active dissemination of the Bystander Training and research findings.** The team has developed an impressive set of products and research that has wide applicability and makes meaningful contributions to research and practice pertaining to improving the academic climate.
- **Mobilize key stakeholders to support sustainability efforts.** Use the IAB and other strong advocates to help guide discussions of sustainability and to be spokespersons for promoting the impacts and successes that have resulted from the grant's work, such as by sharing them with their departments, colleges, and units. This dissemination will also help with generating support for institutionalizing key programs.

In conclusion, even with the onset of a pandemic, WAVES made meaningful progress in enhancing the culture for diversity at UML, taking steps to reduce incidences of bias, improving the number of women in positions of leadership, and encouraging departments to set goals and create action plans related to diversity, equity, and inclusion among their faculty. To guide sustainability efforts for programmatic activities, in Year 5 the WAVES team should continue to vet a sustainability plan, with a focus on financial and personnel requirements and accountability mechanisms (including data collection and reporting). WAVES is poised to take its place as a national leader in Bystander Training and microaggressions research.

APPENDIX A: BYSTANDER TRAINING SURVEY INSTRUMENT

***Making WAVES* Bystander Training**
Post-Workshop Evaluation

You are being asked to complete this survey because you have participated in a Bystander Training Program organized by the WAVES team.

The Bystander Training session deals with addressing **Microaggressions**. Microaggressions are brief and commonplace verbal or behavioral slights-whether intentional or unintentional-towards individuals that are members of traditionally underrepresented groups.

The purpose of this survey is to assess your thoughts and attitudes after the training program. We ask that you answer the following questions to the best of your ability. **Our goal is to understand the efficacy of our training program and your participation is invaluable!**

We realize some questions may seem redundant, however, each question is critical to have a reliable assessment tool. Please do your best to answer each question; there are no right or wrong answers.

We will not ask for your name; thus, your responses are anonymous. We will ask you to generate a code that is unique to you so that we may track your responses to the pre- & post-training surveys. This survey will take about 10 minutes of your time. By completing this survey, you are indicating your consent for taking the survey. You may quit at any time. If you have any questions about this survey, please feel free to contact Michelle Haynes-Baratz, michelle_haynesbaratz@uml.edu , 978-934-3925

****STOP--- READ ME****
Please provide your unique code

In order to keep your responses anonymous, we ask you to ***generate a unique 7-digit code that will allow us to match your data across time points***, but does not reveal your identity.

The rules to generate your unique code are:

- The first two letters of your mother's first name (or XX if unknown),
- The first two numbers of your home address (or X for the second digit if only one number),
- The last two digits of your birth year,
- The number of siblings you have (0 if only child)

(For example, if your mother's name is Anne, you live at 7489 Lowell Street, you were born in 1962 & have 2 sisters, your code would be AN74622.)

What is your code? ____ ____ , ____ ____ , ____ ____ , ____

Q1. Please indicate your level of agreement with each of the following statements.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
1. Microaggressions are a problem at this university.					
2. I am aware that faculty at this university experience subtle bias.					
3. I have seen other faculty experience microaggressions at this university this year.					
4. It is evident to me that someone who is the target of a microaggression needs help.					
5. If someone makes an inappropriate comment, the person on the receiving end should realize it is just a joke and probably not intended as malicious.					
6. I think microaggressions are hurtful and damaging to others.					
7. I feel personally responsible to intervene and assist in resolving incidents involving microaggressions.					
8. If I am not the one saying something biased, it is still my responsibility to try to stop it.					
9. I believe that my actions can help to reduce microaggressions and subtle bias.					
10. I have the skills to support a faculty member who is being treated disrespectfully.					
11. I know what to say to stop a microaggressive incident.					
12. I can help get someone out of a situation where he or she is the target of microaggressions.					
13. I would tell a group of my colleagues to stop using sexist language or behaviors if I saw or heard them speaking/behaving inappropriately.					
14. I would say something to a faculty member who is acting disrespectfully to another faculty member.					
15. I would tell my colleague to stop if he/she were speaking derogatorily about another colleague.					
16. If I saw a faculty member I did not know be the target of a microaggressive incident, I would help get him or her out of the situation.					
17. I would tell a group of my colleagues to stop using racist language or behaviors if I saw or heard them speaking/behaving inappropriately.					

Q2. Please read each of the following **behavioral statements**. For each statement, indicate ***your degree of confidence you have that you would act this way*** in the situation described.

0% = not at all confident I would behave this way; **100% = certain** I would behave this way

	%
1. Express my discomfort if I see a colleague being repeatedly interrupted and/or ignored when speaking.	
2. Express my discomfort if I see a colleague being labeled "aggressive/bitchy" due to being assertive or talking about accomplishments.	
3. Express my discomfort if I see a colleague being dismissed or devalued by another colleague.	
4. Talk to a friend who I suspect to be target of microaggression.	
5. Get help and resources for a friend who tells me they have been the target of microaggression.	
6. Ask a colleague who looks very upset if they are OK or need help.	
7. Ask a colleague if they need support dealing with a microaggression targeted towards them.	
8. Ask a colleague if they need to talk about a situation happened at a faculty meeting where she/he felt devalued due to her/his race or gender.	
9. Criticize a colleague who complains about paying attention to gender/racial equity issues.	
10. Do something if I see women or faculty of color disproportionately assigned to service roles with less status. (e.g., advising vs. more visible leadership roles)	
11. Do something if I see women or faculty of color being excluded from travel and/or other professional opportunities without being consulted.	
12. Say something if I see a women or faculty of color having their name interchanged or confused with names of people from the same underrepresented groups.	
13. Communicate your disapproval if I hear a colleague questioning another's commitment and productivity in relation to their family status or caretaking responsibilities.	
14. Do something if I see a colleague repeatedly being asked to take on more clerical work e.g. taking minutes at meetings.	
15. Do something if I see a colleague being dismissed or devalued by another colleague.	

Q3. Please indicate your level of agreement with each of the following statements.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
1. I can help prevent microaggressions in my workplace.					
2. It is intimidating to think about directly challenging a colleague who is being biased in a group meeting.					
3. It is intimidating to think about directly challenging a colleague who is being biased in an informal encounter.					
4. Colleagues would listen to me if I confronted them about their biased behavior.					
5. I have the skills to help support someone who is the target of microaggressions.					
6. The fear of being shunned would prevent me from telling a group of colleagues it was disrespectful speak about female faculty member dismissively.					
7. I don't think I could stop a group of male colleagues who are being dismissive or devaluing a female colleague.					
8. I would be comfortable telling my friend to stop if he/she was expressing a microaggression.					
9. I believe my peers will listen to me if I speak out against subtle bias.					
10. I have the confidence to say something to a person who is acting inappropriately toward a colleague.					
11. It would be too hard for me to confront a colleague who was being dismissive of another colleague.					

Q4. Please indicate your level of agreement with each of the following statements.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
1. If someone intervenes in a problem situation, usually a negative outcome can be avoided.					
2. It is my responsibility to intervene when I notice subtle bias.					
3. Most UML faculty (51% or more) believe it is their responsibility to intervene when they notice subtle bias.					
4. I have the skills to effectively intervene with my colleagues when I witness subtle bias.					
5. I feel confident I could effectively intervene with my colleagues when I witness subtle bias.					
6. The fear of being shunned would prevent me from telling a group of colleagues it was disrespectful speak about female faculty member dismissively.					
7. I don't think microaggressions are a big problem on campus.					
8. I don't think there is much I can do about bias on campus.					
9. There isn't much need for me to think about microaggressions on campus, that's the job of human resources and/or campus leadership.					
10. I think I can do something about microaggressions and am planning to find out what I can do about the problem.					
11. I am planning to learn more about the problem of bias on campus.					
12. I have recently attended a program about microaggressions.					
13. I am actively involved in projects to deal with microaggressions on campus.					
14. I have recently taken part in activities or volunteered my time on projects focused on ending microaggressions on campus.					
15. **I would recommend this workshop to my colleagues.**					

Q5. Please indicate ***how important*** each of these statements ***would be to you if you were considering intervening in a situation*** where you witnessed someone being slighted or devalued at work and you thought it was connected to their gender, race, or other demographic status.

	Not at all important	Slightly important	Moderately important	Very important	Extremely important
1. If I intervene regularly, I can prevent someone from being psychologically hurt.					
2. It is important for all faculty members to play a role in keeping the workplace safe.					
3. Colleagues will look up to me and admire me if I intervene.					
4. I will feel like a leader in my workplace if I intervene.					
5. I like thinking of myself as someone who helps others when I can.					
6. Intervening would make my colleagues angry with me.					
7. Intervening might cost me friendships.					
8. Intervening might cost me my job.					
9. I could get physically hurt by intervening.					
10. I could make the wrong decision and intervene when nothing was wrong and feel embarrassed.					
11. People might think I'm too sensitive and am overreacting to the situation.					
12. I could get in trouble by making the wrong decision about how to intervene.					

Q6. Did you complete the pre-workshop survey?

_____Yes; _____No; _____Prefer not to answer

Q6a. If NO to above, pleaser answer the following demographic questions (otherwise skip):

(1) Please tell us your academic position at UML: _____

(2) How do you identify your gender? _____

(3) How do you identify your race? _____

(4) Which college do you primarily work in? _____

Q7. What were the **two most significant things you learned** from this workshop event?

_____
_

_____
_

_____
_

Q8. What aspect of the workshop did you find to be the **most useful**?

_____
_

_____
_

_____
_

Q9. What aspect of the workshop did you find to be the **least useful**?

_____
_

_____
_

_____
_

Q10. Do you have any suggestions for making a training such as this **more relevant to UML context?**

_____
_

_____
_

_____
_

Q11. What types of **follow up training or other activities** would be useful to help reinforce what you learned today?

_____
_
_____
_
_____
_

Q13. Please provide additional comments for us here

_____
_
_____
_
_____
_

Thank you for your time and input!!

APPENDIX B: INTERNAL EVALUATION TEAM 50/50 SUMMARIES

Center for Program Evaluation

50/50 Initiative Post Event Survey Summary: Dr. Linda Broadbelt

November 5, 2019

CPE Briefing 1905

Jill Lohmeier, Ph.D.

Siffat Ara Sharmin, M.Ed.

Bangsil Oh, Ph.D.

Submitted to: WAVES team

University of Massachusetts Lowell

November 2019

50/50 Initiative Post Event Survey Summary: Dr. Linda Broadbelt

Event description

The 50/50 lecture was held on Tuesday, November 5, 2019 at 3:30pm in ETIC Atrium. The lecture was titled "*Research Leadership through Collaboration.*" and the speaker was Dr. Linda Broadbelt, a Sarah Rebecca Roland Professor in the Department of Chemical and Biological Engineering (ChBE) and Associate Dean for Research of Engineering at Northwestern University. She was Chair of the Department of ChBE from 2009-2017. The lecture was hosted by Wan-Ting (Grace) Chen, PhD. The series focused not on her research, but on her struggles as she tried to meet his own high expectations in research.

Survey Participants

The 50/50 initiative post-event survey was administered on the day of the lecture. 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; two were a "yes" or "no" question; three were open-ended questions; and three were demographic questions. The survey took approximately 5 minutes for participants to complete. The survey instrument is provided in the Appendix.

Out of 38 participants at the event (19 males and 19 females), 22 (57.89%) completed the survey. The demographic details are provided in Table 1.

Table 1
Participant Demographic

	Demographics	Number of Participants
Status	Student	14
	Postdoctoral Scholar	1
	Assistant Professor	5
	Associate Professor	1
	Did not answer	1
Gender	Male	12
	Female	8
	Did not answer	2
Field of study	Biochemistry	1
	Chemical Engineering	4

	Computational Catalysis	1
	Electrochemical Energy Systems	1
	Mechanical Engineering	3
	Mechanical Engineering. Energy	1
	Nanoscale Catalyst for Multi-phase Reaction	1
	Plastics Engineering	7
	Polymer Plastics	1
	Did not answer	2
First time attending 50/50 lecture	Yes	17
	No	4
	Did not answer	1
First time attending WAVES' event	Yes	17
	No	4
	Did not answer	1

Participants' Perspectives on This Event

Even though half of the participants (50%) were not familiar with the work of the speaker before attending (M=2.86, SE=.281), all of the participants were motivated to attend the event to learn about the speaker's career (M=4.41, SE=.107) and almost all of them (91%) were motivated to attend the event to learn about the speaker's technical work (M=4.41, SE=.170). Almost all the participants (95.5%) 'agreed' or 'strongly agreed' the information regarding technical portion informative (M=4.71, SE=.101) as well as the information regarding career path informative (M=4.55, SE=.127). Furthermore, 82% participants 'agreed' or 'strongly agreed' that the career issues raised in the event reflected their personal concerns (M=4.23, SE=.160) as well as their awareness of experiences of women in STEM (M=4.14, SE=.178). Almost all of the participants (95.5%) learned something from this event that will help them with their careers (M=4.50, SE=.127).

All of the participants would like to attend future events sponsored by UML 50/50 Initiative (M = 4.82, and SE = .084) and would recommend the UML 50/50 talks to others (M = 4.77, and SE = .091). The frequency distributions are presented in Figure 1.

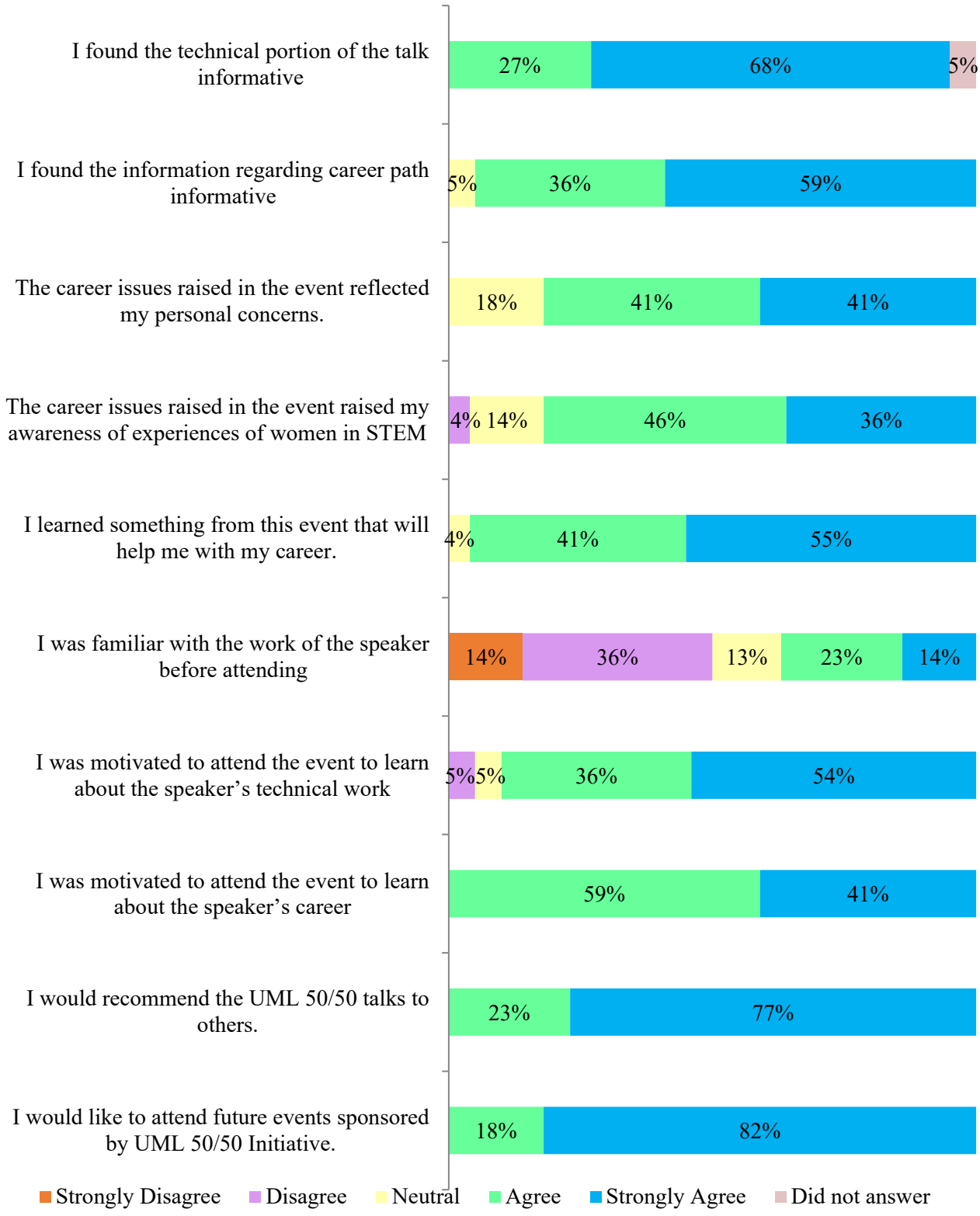
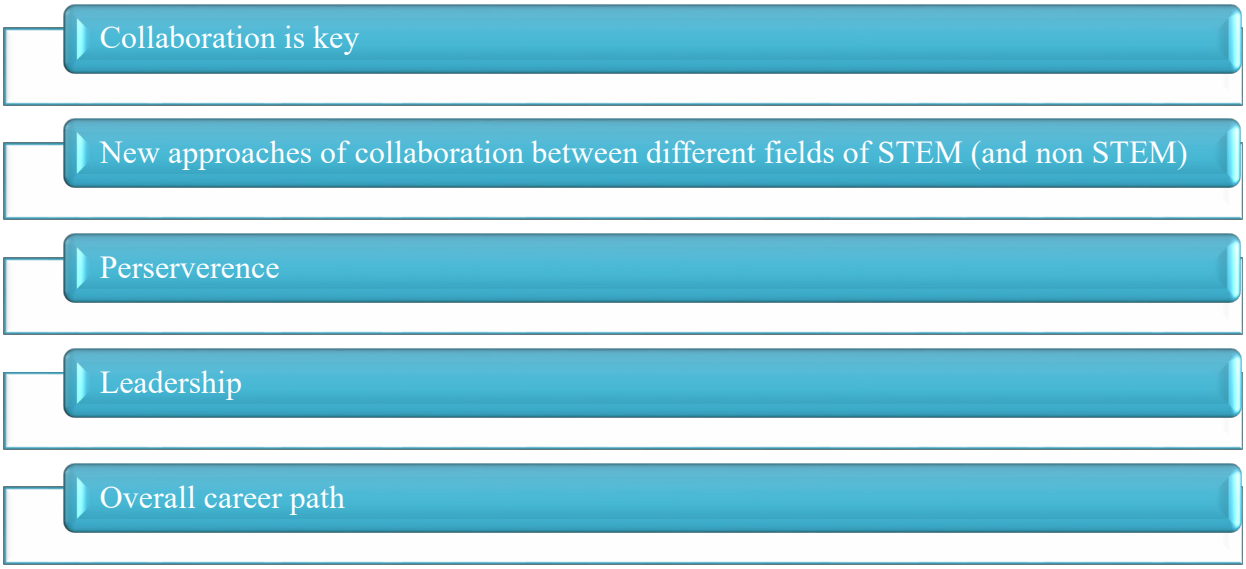


Figure 1. Frequency Distribution of the Participants' Perspectives on This Event.

Most Significant Things Participants Learned from the Event That They Will Apply to Their Work Life/Career

Out of the 22 survey participants, 12 participants shared their most significant things learned from this event that they will apply to their work life/career. The responses shared include:



Hopes to Discuss or Address at Future Events

A total of 9 participants answered the question about 'their hopes to discuss or address at future events.' Some of the responses shared include:

Additional Ideas to Share with the 50/50 Initiative Project Team

The survey participants were asked about their additional ideas for the 50/50 project team. For the additional comments, two respondents appreciated the event, one respondent "N/A" and another respondent said "none".

50/50 Lecture Survey

series is fulfilling a university need, please take 5 minutes to complete this assessment following the presentation.

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

	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
1. I found the technical portion of the talk informative					
2. I found the information regarding career path informative					
3. The career issues raised in the event reflected my personal concerns.					
4. The career issues raised in the event raised my awareness of experiences of women in STEM					
5. I learned something from this event that will help me with my career.					
6. I was familiar with the work of the speaker before attending					
7. I was motivated to attend the event to learn about the speaker's technical work					
8. I was motivated to attend the event to learn about the speaker's career					
9. I would recommend the UML 50/50 talks to others.					

10. I would like to attend future events sponsored by UML 50/50 Initiative.					

2. Is this your first time attending 50/50 lecture? *(Please circle)* Yes No

3. Is this your first time attending an event sponsored by WAVES? *(Please circle)*
Yes No

4. Please indicate your title *(Please circle)*
Student
Postdoctoral Scholar
Lecturer
Assistant Professor
Associate Professor
Full Professor
Other: _____

5. How do you identify your gender? *(Please circle)*
Male Female Other

6. My field of study is :_____

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

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

9. 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.

Center for Program Evaluation

50/50 Initiative Post Event Survey Summary: Nicole Gonzalez Van Cleve

December 4, 2019

CPE Briefing 1906

Jill Lohmeier, Ph.D.

Bangsil Oh, Ph.D.

Siffat Ara Sharmin, M.Ed.

Submitted to: WAVES team

University of Massachusetts Lowell

December 2019

Event description

The 50/50 lecture was held on Wednesday, December 4, 2019 at 3:30pm in O'Leary Mezzanine. The lecture was titled "*Crook County: Racism and Injustice in America's Largest Criminal Court.*" and the speaker was Nicole Gonzalez Van Cleve, is an Associate Professor in the Department of Sociology at Brown University and an affiliated scholar with the American Bar Foundation in Chicago, IL. She is the award-winning author of the book, *Crook County, Racism and Injustice in America's Largest Criminal Court.* She has provided legal commentary on the criminal justice system for MSNBC's The Rachel Maddow Show, NBC News. CNN. NPR and The New York Times. The lecture was hosted by Teresa Gonzales. The series focused not on her research, but on her struggles as she tried to meet his own high expectations in research.

Survey Participants

The 50/50 initiative post-event survey was administered on the day of the lecture. 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; two were a "yes" or "no" question; three were open-ended questions; and three were demographic questions. The survey took approximately 5 minutes for participants to complete. The survey instrument is provided in the Appendix.

Out of 74 participants at the event (32 males and 42 females), 30 (40.5%) completed the survey. The demographic details are provided in Table 1.

Table 1

Participant Demographic

	Demographics	Number of Participants
Status	Student	27
	Assistant Professor	1
	Did not answer	2
Gender	Male	7
	Female	21
	Did not answer	2
Field of study	Civil Engineering	1
	Computer Science	1
	Education	1

	Environmental Science	1
	Exercise Science	1
	Pharmacy	1
	Psychology	5
	Psychology (Minor: Sociology)	1
	Public Health	3
	Sociology	5
	Undecided	2
	Undeclared	4
	Undeclared - Liberal Arts	2
	Did not answer	2
First time attending 50/50 lecture	Yes	28
	No	-
	Did not answer	2
First time attending WAVES' event	Yes	27
	No	1
	Did not answer	2

Participants' Perspectives on This Event

Even though half of the participants (50%) were not familiar with the work of the speaker before attending (M=2.80, SE=.232), 57% of the participants 'agreed' or 'strongly agreed' that they were motivated to attend the event to learn about the speaker's career (M=3.70, SE=.145) and half of them (50%) 'agreed' or 'strongly agreed' that they were motivated to attend the event to learn about the speaker's technical work (M=3.57, SE=.149). Almost all the participants (90%) 'agreed' or 'strongly agreed' the information regarding technical portion was informative (M=4.33, SE=.121) and most of them (87%) agreed or strongly agreed the information regarding career path was also informative (M=4.28, SE=.121). Furthermore, 71% participants 'agreed' or 'strongly agreed' that the career issues raised in the event reflected their personal concerns (M=3.86, SE=.170), and 67% participants 'agreed' or 'strongly agreed' that the issues also raised their awareness of experiences of women in STEM (M=3.86, SE=.163). Most of the participants (70%) learned something from this event that will help them with their careers (M=3.97, SE=.189).

Almost all of them (93%) would recommend the UML 50/50 talks to others (M = 4.17, and SE = .097), and most of the participants (77%) would like to attend future events sponsored by UML 50/50 Initiative (M = 3.90, and SE = .130). The frequency distributions are presented in Figure 1.

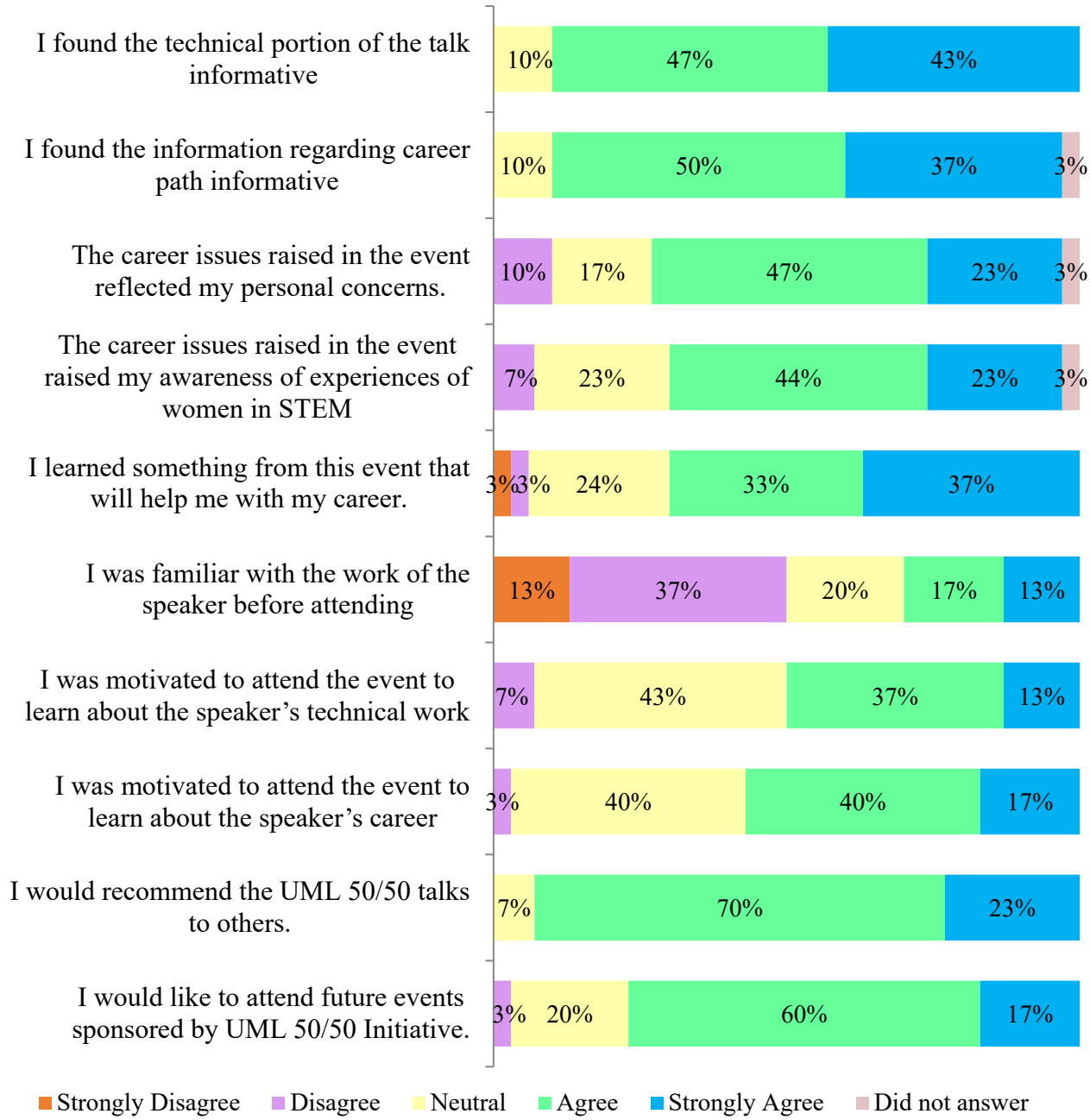
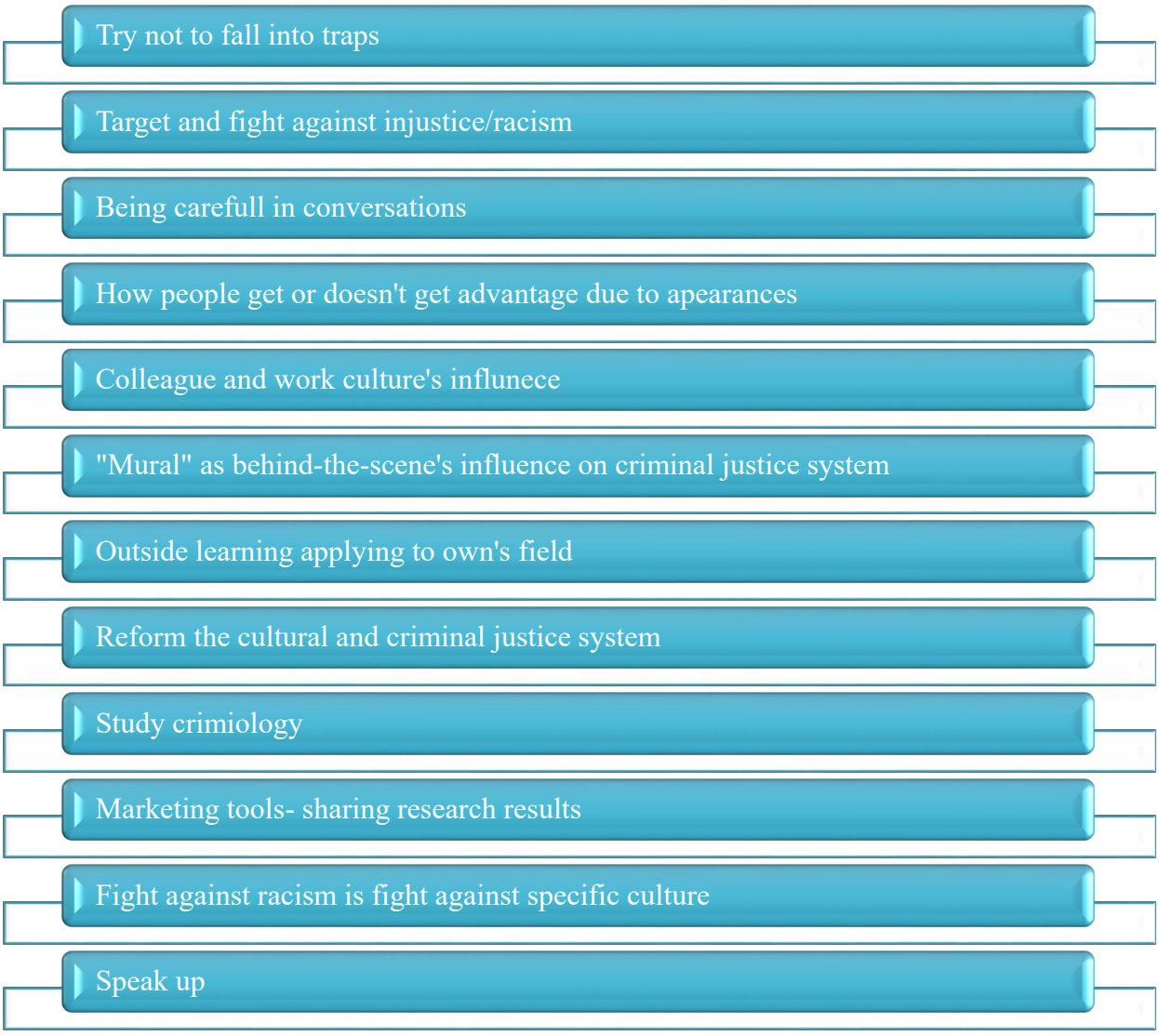


Figure 1. Frequency Distribution of the Participants' Perspectives on This Event.

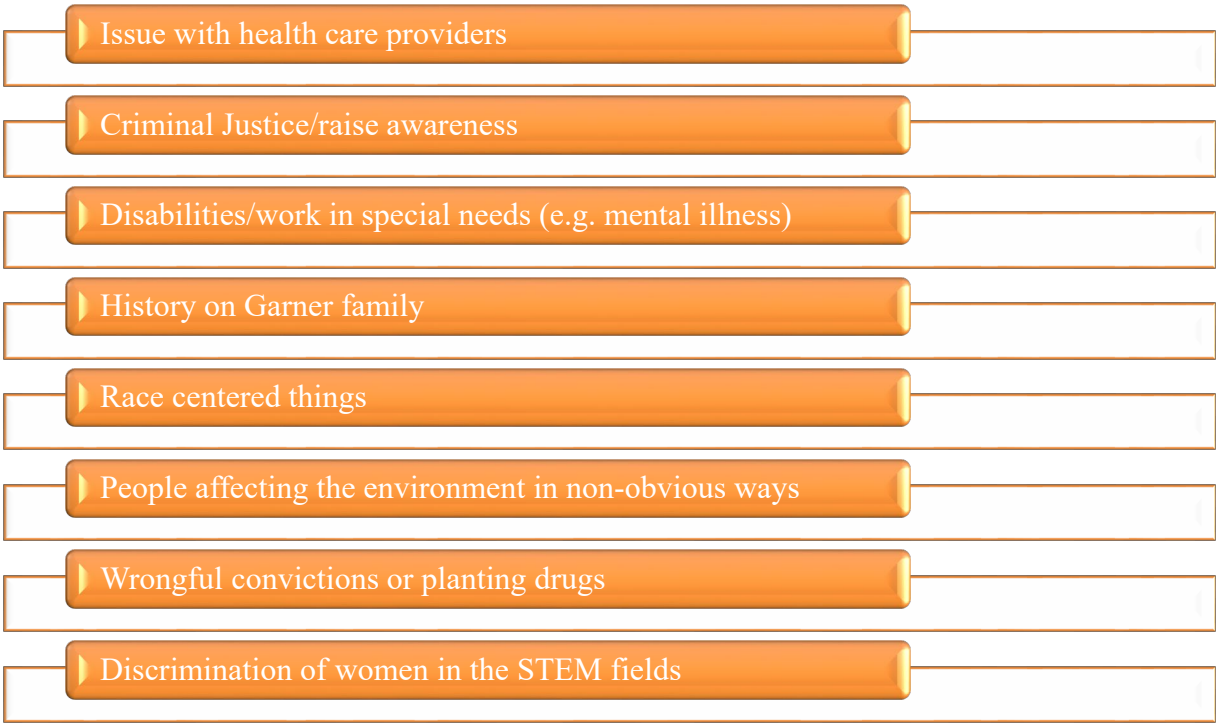
Most Significant Things Participants Learned from the Event That They Will Apply to Their Work Life/Career

Out of the 30 survey participants, 25 participants shared their most significant things learned from this event that they will apply to their work life/career. The responses shared include:



Hopes to Discuss or Address at Future Events

During the lecture, one male and one female participant raised questions to the mentor asking how to overcome challenges as a person of color when working with privileged individual. Out of the 30 survey participants, a total of 19 participants answered the question about 'their hopes to discuss or address at future events.' Some of the responses shared include:



Additional Ideas to Share with the 50/50 Initiative Project Team

The survey participants were asked about their additional ideas for the 50/50 project team. For the additional comments, one respondents appreciated the event, and another respondent said the presentation was informative and interesting. Nine respondent said "N/A" and one respondent said "No".

50/50 Lecture Survey

series is fulfilling a university need, please take 5 minutes to complete this assessment following the presentation.

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

	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
11. I found the technical portion of the talk informative					
12. I found the information regarding career path informative					
13. The career issues raised in the event reflected my personal concerns.					
14. The career issues raised in the event raised my awareness of experiences of women in STEM					
15. I learned something from this event that will help me with my career.					
16. I was familiar with the work of the speaker before attending					
17. I was motivated to attend the event to learn about the speaker's technical work					
18. I was motivated to attend the event to learn about the speaker's career					
19. I would recommend the UML 50/50 talks to others.					

20. I would like to attend future events sponsored by UML 50/50 Initiative.					

2. Is this your first time attending 50/50 lecture? *(Please circle)* Yes No

3. Is this your first time attending an event sponsored by WAVES? *(Please circle)*
Yes No

4. Please indicate your title *(Please circle)*
Student
Postdoctoral Scholar
Lecturer
Assistant Professor
Associate Professor
Full Professor
Other: _____

5. How do you identify your gender? *(Please circle)*
Male Female Other

6. My field of study is :_____

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

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

9. 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.

Center for Program Evaluation

50/50 Initiative Post Event Survey Summary: Dr. He (Helen) Huang

February 12, 2020

CPE Briefing 2001

Jill Lohmeier, Ph.D.

Bangsil Oh, Ph.D.

Siffat Ara Sharmin, M.Ed.

Submitted to: WAVES team

University of Massachusetts Lowell

February 2020

50/50 Initiative Post Event Survey Summary: Dr. He (Helen) Huang

Event description

The 50/50 lecture was held on Wednesday, February 12, 2019 at 3:30pm in O'Leary Mezzanine. The lecture was titled "*Restoring Motor Function in Amputees with Smart Prostheses*" and the speaker was Dr. He (Helen) Huang, is a Professor in the joint Department of Biomedical Engineering at North Carolina State University (NCSU) and the University of North Carolina at Chapel Hill (UNC). Her research in neural-machine interfaces has been sponsored by federal agencies (such as NSF, NIH, DOD, DARPA, and NIDILRR) and private companies (such as Össur and BionX). She was a recipient of the Delsys Prize for innovation in electromyography, the Mary E. Switzer Fellowship with the National Institute on Disability, Independent Living, Rehabilitation Research (NIDILRR), and NSF Career Award. The series focused not on her research, but on her struggles as she tried to meet his own high expectations in research. The lecture was hosted by a UMass Lowell faculty named Yi-Ning (Winnie) Wu, PhD.

Survey Participants

The 50/50 initiative post-event survey was administered on the day of the lecture. 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; two were a "yes" or "no" question; three were open-ended questions; and three were demographic questions. The survey took approximately 5 minutes for participants to complete. The survey instrument is provided in the Appendix.

Out of 22 participants at the event (10 males and 12 females), 19 (86.4%) completed the survey. The demographic details are provided in Table 1.

Table 1

Participant Demographic

	Demographics	Number of Participants
Status	Student	16
	Assistant Professor	1
	Full Professor	2
Gender	Male	10
	Female	9
Field of study	Biological Science	1

	Biology	1
	Biology Pre-Med	1
	Biomechanics, Physical Therapy	1
	Biomedical Engineering	4
	Computer Science	1
	Computer Science and Mathematics	1
	Exercise Physiology	2
	Exercise Science	2
	Finance	1
	Mechanical Engineering	1
	Nutritional Science	1
	Plastics Engineering	1
	Did not answer	1
First time attending 50/50 lecture	Yes	16
	No	3
First time attending WAVES' event	Yes	16
	No	3

Participants' Perspectives on This Event

Even though only 26% of the participants were familiar with the work of the speaker before attending (M=2.58, SE=.353), all the participants 'agreed' or 'strongly agreed' that the information regarding technical portion (M=4.89, SE=.072) and career path was informative (M=4.68, SE=.110). Furthermore, 74% participants 'agreed' or 'strongly agreed' that the career issues raised in the event reflected their personal concerns (M=3.95, SE=.223), and most of them (84%) 'agreed' or 'strongly agreed' that the issues also raised their awareness of experiences of women in STEM (M=4.32, SE=.203). Most of the participants (84%) learned something from this event that will help them with their careers (M=4.44, SE=.166).

Almost all of them (95%) would recommend the UML 50/50 talks to others (M =4.74, and SE = .129), and also would like to attend future events sponsored by UML 50/50 Initiative (M = 4.68, and SE = .134). The frequency distributions are presented in Figure 1.

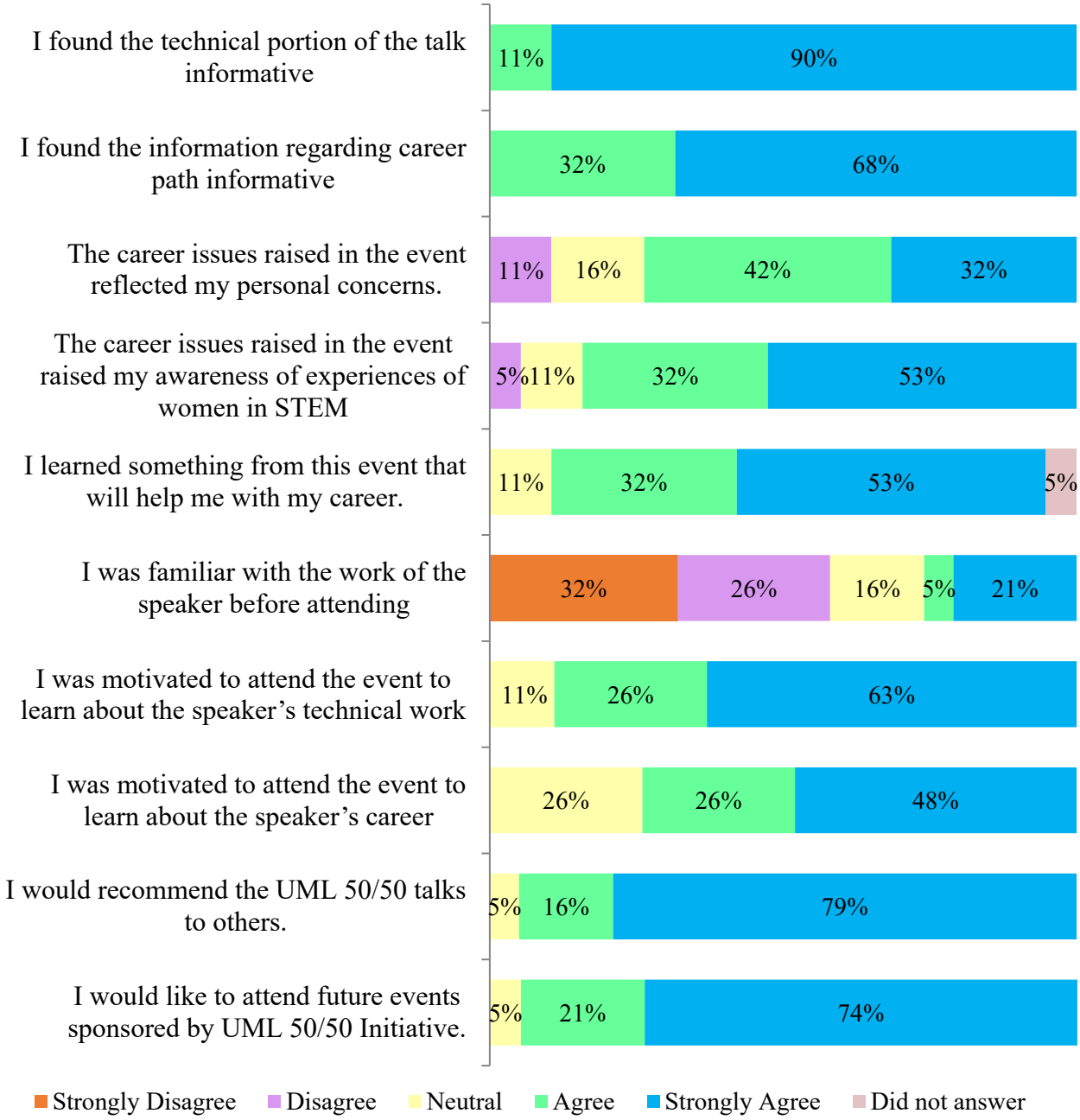
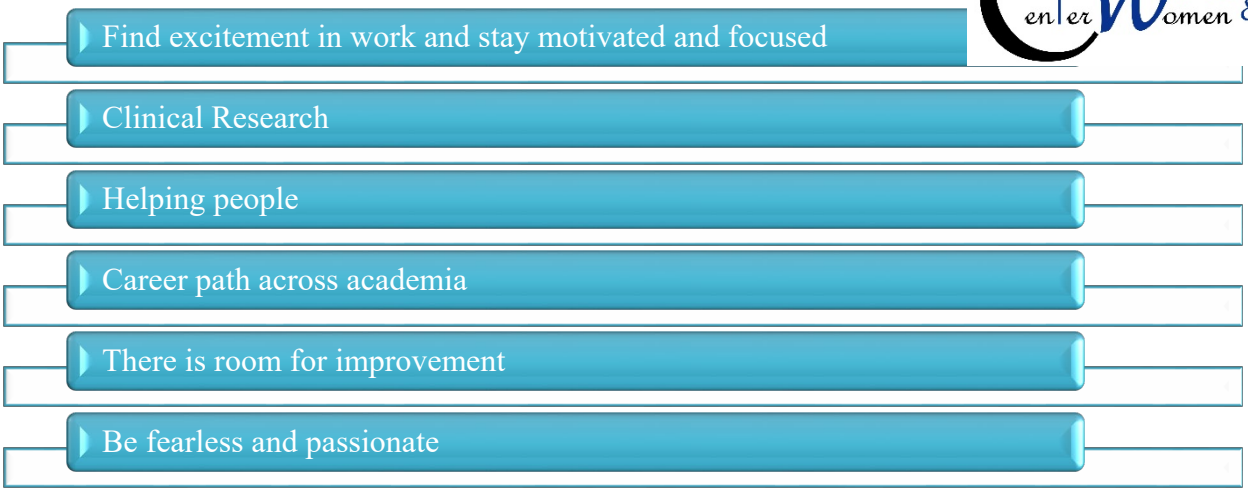


Figure 1. Frequency Distribution of the Participants' Perspectives on This Event.

Most Significant Things Participants Learned from the Event That They Will Apply to Their Work Life/Career

Out of the 19 survey participants, 15 participants shared their most significant things learned from this event that they will apply to their work life/career. The responses shared include:



Hopes to Discuss or Address at Future Events

Out of the 19 survey participants, a total of 11 participants answered the question about 'their hopes to discuss or address at future events.' Some of the responses shared include:

One participant asked more of everything and another participant commented that s/he is open to any other topics. Two of the participants were satisfied with the current lecture.

Additional Ideas to Share with the 50/50 Initiative Project Team

The survey participants were asked about their additional ideas for the 50/50 project team. For the additional comments, three respondents appreciated the event. Another three [illegible]ts commented "N/A" and one said there were "no further questions".

Appendix

50/50 Lecture Survey

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 to complete this assessment following the presentation.

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

	Strongly Disagree	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
21. I found the technical portion of the talk informative					
22. I found the information regarding career path informative					
23. The career issues raised in the event reflected my personal concerns.					
24. The career issues raised in the event raised my awareness of experiences of women in STEM					
25. I learned something from this event that will help me with my career.					
26. I was familiar with the work of the speaker before attending					
27. I was motivated to attend the event to learn about the speaker's technical work					
28. I was motivated to attend the event to learn about the speaker's career					
29. I would recommend the UML 50/50 talks to others.					
30. I would like to attend future events sponsored by UML 50/50 Initiative.					

2. Is this your first time attending 50/50 lecture? *(Please circle)* Yes No

3. Is this your first time attending an event sponsored by WAVES? *(Please circle)*
Yes No

4. Please indicate your title *(Please circle)*
Student
Postdoctoral Scholar
Lecturer
Assistant Professor
Associate Professor
Full Professor
Other: _____

5. How do you identify your gender? *(Please circle)*
Male Female Other

6. My field of study is :_____

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

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

9. 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.

APPENDIX C: 50/50 LECTURE SERIES EXTERNAL EVALUATION MEMO

EXTERNAL EVALUATION MEMO

MAKING WAVES 50/50 LECTURE SERIES

NSF ADVANCE IT GRANT, UNIVERSITY OF MASSACHUSETTS LOWELL

NSF GRANT NO. 1629761

MARCH 19, 2019

Submitted By:

Mariko Chang Consulting, Inc.

Mariko Chang, PhD
Sadie Davis, MPP

www.mariko-chang.com

1. Introduction

This memo summarizes the external evaluation activities undertaken related to the University of Massachusetts Lowell (UML) Making WAVES 50/50 Lecture Series. The goal of the 50/50 Lecture Series is to provide the campus community with examples of successful women in STEM at the academic level. UML hosts invite speakers to campus to give a lecture addressing both their research accomplishments and their career paths.

In February and March 2019, the external evaluator conducted interviews by phone with past 50/50 Lecture Series hosts. Four hosts were invited to be interviewed and three were interviewed, including two who participated in the 2015-2016 academic year and one in 2017-2018.

2. Interview Findings

A. Reasons for Participating

All three hosts said that they decided to participate in the program because they were contacted via email by the WAVES team. Hosts saw the program as an opportunity to build professional connections with excellent scholars in their fields and to learn about their life experiences. For example:

> "I thought it would be a great opportunity to interact with one of the more senior and more experienced professors who worked in my research area. And I started interacting with this person who would also help me gain new insights, and research, and also other life experiences. One of the goals was to try to start a collaboration. And when I mentioned to my guest, he was very excited about it."

Another interviewee noted that she was happy to receive a follow-up email explaining the mentorship aspect of the program, which she said made the program stand out from the many other seminars on campus and helped her to decide to become a host.

> "I'm happy to get another e-mail to explain, this is a little different, because I think it's just more about having the mentoring part, to also have the connection between the mentor in a specific research area with the faculty member working at UMass Lowell. I think it's a very, very good and very unique experience for me, so I was very happy to get involved in this seminar."

B. Speaker Selection, Planning, and Visit Goals

Hosts invited potential speakers via email and arranged the logistics surrounding the visit. All three hosts interviewed had prior connections to the speaker before they issued the invitations, such as having met at conferences, but they hoped that inviting the speakers would build on

those relationships and lead to future collaborations. Hosts also mentioned wanting to make a good impression on the speaker in terms of presenting their own research work and UML facilities, and hoping to gain insights into the visiting researcher's career path.

> "I wanted to make a good impression on this person. I wanted to make a good impression of the university on this person."

> "I wanted this person to have some stories to tell us of how she can actually, not just do research, but also how she can give us some insight about her career path."

> "I [wanted] to learn from her about her career path, and I think she would be a good role model for, not just me, but also our colleagues, our friends here at UMass Lowell. That's one criterion and also one goal. I also would like to keep this connection going in future conferences so we get closer."

One host found it challenging to find a speaker who was located nearby UML, but was able to work with the WAVES team to allow for the additional travel expenses incurred by selecting a speaker further away.

Prior to each speaker's visit, 50/50 Lecture Series hosts arranged meetings with UML faculty and graduate students, advertised the lecture, and in some instances planned laboratory tours for the speaker. One host also mentioned tasks related to arranging the speaker's accommodation, transportation, and meals, and noted that this planning took a significant amount of time: "It was actually a lot of work for me… In the end, I'm happy, it was a nice opportunity and stuff, but it was work." The other two hosts interviewed did not provide feedback about their workload as hosts, which may suggest that they did not find it burdensome or that they were tasked with arranging fewer logistical details.

C. Reflections on the Visit

Hosts were generally pleased with the visiting scholars' visits to UML. In their lectures, speakers discussed their research and their career paths, including professional hurdles such as work-life balance and dual career hiring issues. The hosts also noted that it was helpful to hear about challenges that the speakers had encountered.

> "In addition to research, [the speaker] also talked about the path he took until he became a professor at the institution that he's currently in…. It was really interesting to hear the story about it. … His wife is also in academia and it was initially a bit tricky to find jobs in the same area, in the same school. And then for other reasons, they changed their institution. And then there were some hurdles to one party compared to the other, and it was interesting to know. I think it's relevant to when I started my position."

> "[The speaker] talked about sending her daughter to some activity in the evening... She shared her story in the seminar. I remember the audience had very good questions, and

> then they agreed that, it needs the whole family to work together, the so-called balance of life and work."

> "…she's got kids. She's a very real person. In some ways, I think she's a great model because it makes you feel like you can have these different options. … She's very much willing to admit she's not doing everything right or not able to do everything which I find really helpful."

Two hosts described disparate experiences related to the tour portion of the speakers' visit. One host expressed some discomfort at the poor condition of the room where the speaker's lecture was given, while the other was proud to give a tour of her lab and said the speaker was impressed with the facility.

> "She was impressed by the resources that were here. For me, because I am here every day, I don't think it's any kind of surprise, but for her, she did not realize that we have a lot of very interesting research ongoing. I think we gave her a very good impression."

This second host also noted that the tour initiated a helpful discussion with the speaker about a particular piece of laboratory equipment and how it could be better utilized.

> "During the lab tour I introduced my work to her and she also gave me some suggestions, for example, where not to mount the type of [equipment] that we're using in the lab. She did not use the same equipment but used a similar one and told me that the other one is more stable, and we could contact the manufacturer to get a better [one]. She had some good suggestions, and I also shared with her about my work. I think she felt very interested and she asked some critical questions that were very helpful."

D. Benefits of Participation

All three 50/50 hosts found that the greatest benefit from their participation in the program was the professional connection they developed with the speakers. In particular, they felt that they could easily contact the scholars about future collaborations, and some have already done so. Hosts also stated that they might ask the speaker to help with a promotion letter, they felt comfortable asking questions about grant funding, and they may develop a mentoring relationship with their speaker.

Hosts described a variety of other professional benefits from their participation in the 50/50 Lecture Series. Two hosts have already collaborated with their speaker since the 50/50 visit: one host collaborated with the speaker on a proposal that was not successful, but plans to work with the speaker on another project in the future, and another host is currently working on a paper with her speaker. The third host intends to collaborate with the scholar who visited, but has not yet followed up. One speaker also invited the host to go to the speaker's institution to give a lecture and nominated the host for an award in her field.

As previously mentioned, hosts also received personal benefit from hearing the speakers describe challenges they faced in their careers. A host explained, “It was nice to hear someone else's story and maybe use it as advice from an experienced person.”

One host mentioned that it is important for faculty, especially pre-tenure faculty, to consider carefully the tradeoff between time spent doing research and time spent on logistical details of the visit. To maximize the time commitment, it is especially important that the speaker be chosen carefully, as this host explained:

> “I would recommend it [the program] … [but] I question whether it's really actually so beneficial to a pre-tenure person. I could direct that energy towards writing a grant or writing a paper. That would probably translate into more direct benefits. It's a matter of really how critical that person [the speaker] is in terms of helping you network or if you were actually going to write a paper or grant with that person. That would translate into something real. That's the only currency that matters. If you don't have those, it doesn't matter what else you do. You have to be super careful about how you spend your time.”

As this host points out, in order for the host to fully benefit from their role in the Lecture Series, it is important for the host to follow up with the speaker after the visit about potential collaboration, which may be challenging for someone who is immersed in their existing research endeavors.

3. Summary and Recommendations

The three 50/50 Lecture Series hosts interviewed were generally satisfied with their experiences and described personal and professional benefits including identifying with challenges that the speakers had faced along their career paths and building professional connections with scholars who could become future collaborators or mentors.

Hosts’ recommendations for improvement primarily focused around providing greater support in arranging visit logistics, especially for pre-tenure faculty who may feel pressure to focus their time on research activities but could still benefit from participating in the program. Host comments also reveal the importance of their own post-visit follow up with the speaker in order to build on the professional relationship developed through the Lecture Series.

APPENDIX D: GBAI EXECUTIVE SUMMARY

Gender Bias in Academia Index:
WAVES 2019 Faculty Survey
Executive Summary

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The purpose of the ADVANCE-IT grant is to establish an academic environment that supports women in STEM by reducing the interpersonal and institutional microaggressions that undercut their ability to be productive and their general sense of well-being. The Gender Bias in Academia Index (GBAI) survey was administered to UMass Lowell faculty to measure faculty's experiences of microaggressions and gender bias, and their impacts, within various academic settings. This GBAI Survey result report incorporates both quantitative and qualitative findings from the survey.

Method
Out of the 570 UMass Lowell full-time faculty, a total of 327(57%) completed the GBAI survey during the summer of 2019. Faculty members were sent an email invitation by the internal evaluator of the WAVES project requesting that they complete the online survey via Qualtrics. The survey took participants approximately 20-30 minutes to complete. The survey included 162 closed-ended questions and seven open-ended questions.

The surveys produced both quantitative (closed-ended questions) and qualitative (open-ended questions) data for analysis. The questions were combined based on previous research to create 26 dependent variables. For quantitative data, frequency distribution, descriptive statistics, a Multivariate Analysis of Variance (MANOVA), and chi-square tests were conducted. Qualitative data were analyzed using an open coding process and a thematic analysis. In addition, in order to find changes between 2017 and 2019 survey data, a repeated measure was conducted with 62 matched faculty to determine the relationships between the 7 dependent variables.

Quantitative Findings
Overall, results of MANOVA indicate that there were significant main effects of gender ($F(50, 202) = 39.652$, $p<.001$, $\eta^2 =.908$), and faculty rank ($F(100, 402.9) = 13.975$, $p<.001$, $\eta^2 =.773$). However, there were no main differences based on college nor race. Furthermore, where we

analyzed all 26 DVs at the same time, one significant interaction was found: faculty rank & race ($F(175,694.9) = 1.273$, $p<.05$, $\eta^2 = .236$).

1. Looking at gender differences, we see female faculty members:
    - Believe there is significantly **more gender bias toward women** than male faculty do.
    - Believe they have **less resources** than males do.
    - Believe there are **less institutional supports for females** than males do.
    - Feel **more frequently devalued** than male faculty do.
    - Believe there are **less resources and relationships for teaching** than males do.
    - Believe there is **less mentoring** than males do.
    - Believe there is **less team orientation** than males do.
    - Believe there is **less tolerance for individual differences** in their departments than males.
    - Believe their departments are **less fair** than males do.
    - Feel **less belonging in** their departments than males do.
    - Believe they have **less influence** in their departments than males do.
    - Believe their departments have **less emphasis on work-life balance** than males do.
    - Report **more sexual harassment experiences** than males do.

2. Looking at differences based on faculty rank, we see associate tenured faculty:
    - Believe there is significantly **more gender bias toward women** than faculty of other ranks do.
    - Believe there are **less resources and relationships for women** than faculty of other ranks do.
    - Feel **more frequently devalued** than faculty of other ranks do.
    - Believe there are **less resources and relationships for teaching** than tenure track faculty without tenure and full professors do.

3. Looking at differences based on race,

Asian faculty:

- Believe there is significantly **less gender bias toward women** than White faculty and faculty of color, non-Asian.
- Believe there is **more team orientation** than White faculty and faculty of color, non-Asian.
- Believe they have **more influence** than White faculty and faculty of color, non-Asian.

Faculty of Color (non-Asian):

- Feel **more frequently devalued** than Asian and White faculty.
- Have significantly **more identities for which they felt devalued** than White or Asian faculty.

Qualitative Findings

Participants were asked to share their experiences of "small things" that made them fell valued and de-valued, how fair is their department, how do they influence in their department, and how they responded to microaggression. 174 participants (53% of the total survey participants) provided substantive responses to these open-ended questions.

Valued experiences. A total of 138 comments were provided. Seven main themes were prevalent: 1) respect and support from colleagues, 2) recognition and support from administrators, 3) recognition and acknowledgment, 4) respect and appreciation from students, 5) obtaining research intensive, positive comments and interest on my research and publication, 6) opportunities for responsibility and leadership, and 7) promotions and awards.

Devalued experiences. Participants provided 137 comments about their devalued experiences. The majority of devalued experience comments fell into nine main themes: 1) lack of recognition, acknowledgment, and support, 2) negative experiences related to faculty rank or status, 3) negative experiences experiencing disrespect and non-support from department staff, 4) negative experiences related to work or service loads, 5) negative experiences of disrespect and non-support from administrators, 6) lack or support for research and publication, 7) promotion and salary level, 8) receiving inappropriate physical attention, 9) and intruding into personal life.

Department fairness. Participants provided 58 comments in open response to the questiob about their department fairness. Five themes were prevalent: 1) office and research space, 2) experiencing disrespect and non-support, 3) related to gender, 4) promotion, evaluation, job security, contract, & salary issues, and 5) related to rank and status.

Department Influence. A total of 58 participants provided comments to the question about the influence the faculty have over their primary department. Five themes were prevalent: 1) influence on democracy and decision making process, 2) influence by rank and status, 3) influences by others (Chair, Admin, Leaderships), 4) influence on schedules, syllabus, workload & service distribution, and 5) influence on research, publication, grants, resources and office space.

Response to Microaggression. Participants provided 108 comments in open response question about how they responded to microaggression if they have faced it. Six themes were prevalent: 1) ignored it, 2) discussed with colleagues, 3) reported to chair and dean, 4) did nothing, 5) confronted the micro-aggressor, and 6) distanced myself from micro aggressor.

WAVES Event Participation Effects

A MANOVA was conducted to determine if the level of WAVES sponsored event participations have effects on the 26 dependent variables.

Faculty who had highly participated in WAVES events:

- Believe there is **more team orientation** than faculty with low-level of WAVES event participations and faculty who had not participated in the events.

However, there were no significant differences for other 25 variables between no participation, low-level of participation, and high-level of participation.

GBAI 2017 and 2019 Result Comparison

A total of 62 survey participants were matched using survey codes if they completed both the 2017 and 2019 survey codes. A repeated measure was conducted to determine the relationships between the 7 dependent variables.
In 2019, faculty believe:

- There is significantly **more gender bias toward women** on campus than their 2017's responses.
- There are **less institutional supports for females** than their 2017's responses.

However, there were no significant differences between 2017 and 2019 for 1) women's Research and Relationship; 2) Own Research and Relationship; 3) Devalued Social Identities; 4) Problem Settings; and 5) Job Satisfaction.

Conclusion

UMass Lowell has contributed to the creation of new knowledge and best practices to establish an academic environment that supports STEM women to achieve to their highest potential by reducing the interpersonal and institutional microaggressions. This Gender Bias in Academia Index (GBAI) was designed to measure the presence and impact of microaggressions experienced by faculty at UMass Lowell, and to examine differences in gender-based experiences of microaggressions.

The 2019 GBAI Results showed significant differences in key areas by gender, race, and college. Female faculty reported more women's gender bias on campus, fewer their own resources and relationships, fewer institutional supports for female faculty, feeling devalued more often in university settings, and significantly more sexual harassment experiences than male faculty. Furthermore, faculty of color, non-Asian reported significantly more social identities for which they felt had devalued, and feeling devalued more often in university settings than did White or Asian faculty.

The lack of survey code provided by some faculty is concerning. To mitigate this issue in the next round of GBAI surveys, we will be sure to clearly explain why survey code is so important for this research and to explain. Despite this shortcoming, the GBAI did provide the WAVES team and UMass Lowell administrators and faculty with extremely valuable information about the campus climate, as well as an opportunity to increase awareness of microaggressions and the WAVES initiative. The GBAI also provided an opportunity for sharing the findings at feedback sessions with the UMass Lowell faculty community to increase awareness of concerns and to set goals for continual improvement.