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## **Mentoring Pathways: A Small Wins Approach to Fostering Faculty Development**

### **Recognizing Tiny Cuts that Impede Women in Academic STEM**

Over the past several decades, much scholarly effort has been devoted to assessing and addressing the continuing disparities that exist between the recruitment and retention of male and female faculty within higher education. While these disparities have in general decreased within the private professional sector, they remain firmly ingrained within higher education and are particularly pronounced within the STEM (Science, Technology, Engineering, and Mathematics) disciplines (1, 2). Efforts to address the dearth of female faculty members in STEM disciplines have traditionally interpreted the problem in terms of a pipeline from which there were few female scientists and engineers produced as a result of too few entering the disciplines. This perception, in turn, fostered support for intervention programs that would steer more women into the STEM disciplines and ultimately increase the number earning university degrees in those fields (3). Since the implementation of such efforts, the

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number of women earning Ph.D. degrees in the sciences has risen to half of all degrees awarded, but ultimately only 3 to 15 percent of tenured full professors in these disciplines are women (4, 5). Clearly, the academic pipeline is leaking and only a few of those women who enter it remain there throughout their professional careers (6, 7).

In contrast to the instances of overt bias and discrimination that were all too commonly faced by female STEM faculty in the past, Etzkowitz, Kemelgor and Uzzi attribute the loss of women within the academic STEM disciplines today primarily to “tiny cuts” inflicted upon their careers (8). For men, initial small advantages typically accumulate incrementally and can lead to significant influence and power with time. In contrast, the cumulative effects of small impediments may result in seemingly insurmountable barriers to professional academic success for women. Furthermore, the most influential and pervasive tiny cuts are those that interfere with the development of guiding professional networks that are an important source of socialization and mentoring

The National Science Foundation (NSF) has recognized the difficulties in attracting and retaining women within academic STEM disciplines. As a result, NSF announced the establishment of a new funding program entitled ADVANCE: Increasing the Participation and Advancement of Women in Academic Science and Engineering Careers. The goal of ADVANCE is to accomplish institutional change by “transform[ing] academic environments in

ways that enhance the participation and advancement of women in science and engineering.” Since 2001, NSF has awarded over \$135,000,000 to support ADVANCE projects at more than one hundred different institutions through two different types of grants (9). Grants for Institutional Transformation (IT) are awarded to institutions of higher education that undertake comprehensive projects aimed at transforming institutional policies or climate, with a subsection of IT-Catalyst grants directed at institutional self-assessment to uncover the need for transformation. Grants focused on Partnerships for Adaptation, Implementation and Dissemination (PAID) are designed to share information regarding gender issues as well as the results of institutional transformation projects, and are awarded to a broader range of institutions. ADVANCE-IT institutions consistently identify mentoring as a critical factor in the advancement and retention of women faculty in the STEM disciplines, and mentoring is a key element of the “small wins” approach that is the central driving force of the ADVANCE-PAID grant awarded to Auburn University in 2006.

### **A Small Wins Approach at Auburn University**

The foundation for the transformation efforts at Auburn University was the Strategic Diversity Plan (SDP) of Auburn University (10). *ADVANCE Auburn* embraces the SDP as a guiding set of principles and members of the

grant team have worked closely with the newly appointed Associate Provost of Diversity and Multicultural Affairs, who also serves as a co-principal investigator on the grant, to implement its goals and visions. The grant was initially written during a period of growing momentum in the STEM colleges, reflected in the hiring of seven women faculty in 2005, a record number in the College of Sciences and Mathematics and in the College of Engineering. To further explore the needs of these new faculty and others like them, STEM networking sessions were held for women faculty in 2006-2007 where issues disproportionately affecting women faculty and their families, as well as means to deal with them, were discussed. Mentoring of junior STEM faculty and junior women faculty was intensified university-wide with an emphasis on providing the support and guidance needed for success, retention, and advancement.

As a land-grant institution, Auburn University is characterized by faculty who are deeply dedicated to educating students, conducting research, and serving the needs of the people of Alabama through extensive outreach. Such attitudes and achievements are attested to by Auburn being consistently ranked among the top 100 public universities (11). Auburn is a research institution, steeped in tradition, with strong alumni support. It was founded in 1856, was named a land-grant institution in 1872, and became co-educational in 1892. The institution was officially integrated in the 1960's; however, it continues to have difficulties in recruiting a diverse student body and faculty.

As explained by Schein (12), the culture at Auburn has become so embedded in the people, processes and relationships that change is resisted even when demanded by a changing environment, including a changing gender and racial face in the workforce and student body. In 2001, the leadership of Auburn University officially recognized that increasing diversity in its faculty and student body would strengthen scholarship, provide a richer education for its students, make the institution more resilient in the new century, and more effectively serve the people of the state, region and nation. To that end, the University began addressing issues of diversity with renewed vigor through the creation of the Diversity Leadership Council, which developed the Strategic Diversity Plan (13). The basic tenets of the SDP are to foster a respectful and inclusive campus environment and to increase recruitment and retention of a diverse faculty, student body and supporting staff. The plan, accepted by the interim president in March 2005, includes a call for diversity efforts from all faculty, staff and students and charges the senior leaders of the University with the responsibility for guiding and monitoring “meaningful progress” (14).

Two additional signs of the university’s desire to move diversity efforts forward were evidenced in the findings of two undertakings. A focus group of women and men faculty leaders overwhelmingly identified three main existing barriers to an inclusive faculty environment: 1) lack of clear policies to support balancing work and home life; 2) lack of official mentoring or support as women go through the tenure and promotion process; and 3) a campus culture

that makes women feel unwelcome (15). Another indicator of collective interest in fundamental change occurred in the spring of 2005 when 100 participants in three follow-up strategic planning sessions convened by members of the Strategic Diversity Committee (16) repeatedly stated the need to attract more women and minority faculty and to improve work-life policies. Given this increased awareness, Auburn was poised for change when the NSF PAID grant was awarded. The grant was awarded the same month that one of the co-principal investigators at that time, and currently the principal investigator, was appointed to the newly created position of Assistant Provost for Women's Initiatives, a position that emerged as part of the Strategic Diversity Plan. In that role, she oversees faculty advancement initiatives, as well as the newly formed Women's Resource Center, the WISE (Women In Science and Engineering) Institute, and the *ADVANCE Auburn* Center, which was established as one of the grant objectives.

As an *ADVANCE-PAID* project, the programmatic goal of *ADVANCE Auburn* was the establishment of a "small wins" approach to influence lasting change in the culture and climate of the STEM disciplines at Auburn University. A small wins approach suggests that the overall transformation of an institution or workplace comes through incremental change – essentially, it recognizes that small changes can have widespread and long-term impacts (17). Rather than large-scale edicts from upper administration or radical organizational revolution, small wins practices that are implemented at the departmental, center, or college

level result in greater buy-in from all administrative levels and ultimately more substantial institution-wide transformation (18, 19, 20, 21).

The small wins approach is appealing because it allows for small or incremental costs (time and/or money) to return a substantial benefit to the institution, namely, an improvement in the climate for all faculty and greater retention of female faculty in the STEM disciplines. Auburn's grant had five objectives: 1) to establish the *ADVANCE Auburn* Center; 2) to assess the status of STEM women faculty and the climate within the STEM disciplines at Auburn University; 3) to develop a small wins cost/benefit model; 4) to select and implement small wins that have the highest benefit to cost ratio for transforming STEM disciplines and are most applicable to Auburn University; and 5) to disseminate the small wins cost/benefit model and implementation results. Two objective-related efforts have had a significant impact upon faculty mentoring initiatives: the administration of an AU faculty climate survey and a cost-benefit analysis of best practices employed at other *ADVANCE*-funded institutions. The findings from both of these endeavors have been used to develop and implement programmatic changes at Auburn.

#### *Climate Survey Results on Mentoring*

The faculty climate survey was designed and administered by the *ADVANCE Auburn* Center, in conjunction with the Office of Diversity and Multicultural Affairs, to help identify climate issues and impediments to the

retention of female STEM faculty at Auburn University, as well as effective strategies to combat such barriers. While the resulting quantitative measures of evaluation suggested that mentoring of junior faculty was needed, participant responses to qualitative open-ended questions concerning departmental satisfaction offered additional insight. One female faculty member remarked, “Although my chair has been very helpful, there is no social support within my department, which makes being a new faculty member difficult.” Another explained that “[m]ost of my disappointments with AU have to do with communication breakdowns between myself and my chair... the department was woefully unprepared for the influx of new faculty (there were 4 new hires this past year). We’ve all been pretty much left on our own to figure stuff out...” As these comments suggest, a lack of empathetic colleagues, inadequate coaching during professional transitions, and a lack of appropriate role models can serve to estrange female faculty from the rest of their department. Such subtle exclusion can occur socially and intellectually at both the departmental and college level as the following comment by another female faculty member illustrates:

There is no connectivity between the program I am a part of and the department as a whole. There is little opportunity for intellectual stimulation outside my unit and no opportunities to network with other faculty members or programs within the department which would allow resource sharing, brain-trust capitalization, etc. Virtually no contact is made from the dept. head or dean from [our] college with our program.... We are very isolated and operate as an independent unit.

Ultimately, these combined tiny cuts foster an “emotionally draining” sense of both professional and personal isolation (22). This sense of isolation has negative consequences for both the individual faculty member and the institution as female STEM faculty leave the university either due to inadequate professional academic success or by their own volition by seeking a job outside of academe.

The comments from the respondents in our climate survey reflect the typical struggles of female faculty to develop professional networks and become integrated within institutions at the departmental level, struggles that have been identified as all too common for women STEM faculty at other ADVANCE institutions. Tiny cuts ranging from a lack of social support and open lines of communication serve to alienate female faculty from their department and institutional colleagues and, in turn, deny them access to shared resources, intellectual communities, and the power structures of the institution. With a proper understanding of the local academic culture and guidance from those who have already succeeded along the professional academic path, however, female faculty can be encouraged, included, and retained. A female climate survey respondent noted the value of such assistance by explaining that “[M]y Department Head is a very organized leader who believes in shared governance, so I always feel I have a voice with him. I went through the Tenure and Promotion process 18 months ago and felt very prepared because of his foresight and guidance.” As the comment suggests, mentoring can help new set

a faculty member on the right path and play a key role in the success of female faculty members in departments where they are a minority.

#### *Cost Benefit Analysis of Other ADVANCE Institutions*

To complement the findings of the climate survey and further develop a small wins model, *ADVANCE Auburn* sought to understand how other ADVANCE-supported institutions have effectively implemented programs that might represent the small wins approach. A content analysis of ADVANCE program websites and published materials illustrated the primary approaches that have been employed by other universities. The most common initiatives were then grouped into general categories for evaluation: 1) Mentoring; 2) Family-friendly policies; 3) Training programs aimed at raising awareness of gender bias for various campus constituencies (students, faculty, search committees, etc.); 4) Department-wide workshops that highlight the scholarship of female faculty and provide guidance on improving departmental climate; 5) Departmental policies and resources that aim to improve the recruitment and retention of female faculty; and 6) Funding opportunities aimed at recruitment and retention of female faculty. A cost-benefit analysis was conducted to identify those practices that required the fewest resources and contributed the most to the improvement of the university climate and community. The directors of other ADVANCE-funded projects were asked to evaluate both the perceived costs and benefits of those practices that had been implemented at

their institutions using a web-based survey instrument. Of the 72 ADVANCE grant principal investigators contacted via e-mail, 49 responded for a 68 percent response rate.

A cost-benefit ratio was calculated for each initiative by dividing the mean score for benefit by the mean score for cost. This ratio provided a measure for identifying programs that were the most impactful with the least cost, and would therefore be considered a small win. These programs have substantially aided in the career development of women in the STEM disciplines, but it should be noted that these interventions are of value to all untenured faculty. Moreover, the benefits are derived from changes in the organizational culture that have evolved from the motivated efforts of administrators and tenured faculty across the university. Of the 29 initiatives evaluated, mentoring programs represented over half of the most highly ranked practices employed at other universities. Creating programs that incorporate mentoring as a small win will not only aid female faculty development, but also improve the working environment for minority faculty, male faculty, and those from across the disciplinary spectrum alike.

### **Mentoring as a Pathway to Faculty Development**

A recent article by de Janasz and Sullivan notes the limited amount of scholarly research related to mentoring faculty members in academia (23). The authors attribute this dearth to three main causes. The first is that faculty members are assumed to have been prepared by their graduate studies. The implication is that faculty members are assumed to have been mentored during their graduate studies, and to have maintained contact with that mentor. Neither of these assumptions is unreasonable, as graduate students typically choose or are assigned to a major professor under whom they are expected to master their chosen area of study. When hiring, academic institutions screen candidates carefully to ensure that the applicant has, in fact, mastered the area of study and is competent to teach. However, hiring institutions have no guarantee about the quality or continuation of that mentoring relationship. It may be erroneous to assume that just because the major professor *can* mentor a graduate student that mentoring did occur, that the mentoring experience was beneficial for a future faculty member, or that the relationship will be maintained in this new environment. Additionally, many institutions expect junior faculty to establish an independent research program in order to demonstrate their capabilities and ability to function independently of their advisor. To this end, junior faculty may feel pressure to cut ties with their graduate advisor. These predicaments illustrate why a former graduate advisor cannot be solely responsible for mentoring new faculty members.

The second reason described by de Janasz and Sullivan for the lack of literature on mentoring in higher education is that the three-rung promotional ladder makes it difficult to identify appropriate mentors. New faculty members vary considerably in their preparation and experience in teaching and research, with some arriving straight from graduate school, and others having had post-doctoral or professional experience. Additionally, each program, department, and academic institution has subtle nuances in environment and culture that impact the success of new faculty members. Tenured faculty colleagues can play a critical role in helping newcomers understand and navigate the unique departmental culture.

The third reason de Janasz and Sullivan give for the deficiency of literature on mentoring in academia is that some faculty, both junior and senior, perceive little need for mentoring (25). Senior scholars may feel that junior faculty members should be able to navigate the system on their own, referred to as the “sink or swim” model. Additionally, moving up the tenure ladder may only alter the duties of the faculty member in subtle ways. Unlike traditional organizations where a promotion often means a change in responsibilities, a promotion in the academic world is primarily a status change. An assistant professor is expected to teach, conduct research, and engage in service activities just as a tenured professor does. The seemingly static nature of expectations in academia may lead some to believe that mentors are not necessary (26). More recent evidence, however, indicates that support from senior faculty,

department chairs, program heads, deans and other higher status academic professionals is crucial to the success of new faculty members (27). These findings suggest that mentoring is indeed needed in academia, and that if it were made available, it would be beneficial to those who wish to engage in a mentoring relationship. Furthermore, if mentoring is embedded into the academic culture, and if providing mentoring, guidance, and professional socialization is viewed as part of the responsibility of departments, colleges, and universities, junior faculty members might not fear the negative repercussions that could arise from acknowledging the need for such assistance.

Despite the lack of literature specific to higher education, a great deal of research has examined the impact of mentoring programs in other areas at both the individual employee level and the overall success of the organization. Kram defined mentoring as a developmental relationship between supervisors and subordinates, or among peers (28). However, this definition may not be the most applicable to mentoring in academic settings (29). It may be difficult to identify a single person who can serve as a mentor for all areas of interest, which is why a mentoring network consisting of multiple mentors for different areas is often advocated (30,31,32,33), as is peer mentoring (34).

Many times department chairs or heads of a program area are expected to serve in a mentoring capacity; however, these supervisors may not be the most appropriate mentors due to personality conflicts, differing research specialties, or the added responsibilities of their roles that prevent them from

committing significant time to a single faculty member. Moreover, the relationship between a mentor and protégé goes beyond that of a supervisor and subordinate. Ragins and Cotton found different mentoring styles for supervisors and non-supervisors: a supervisory mentor was able to provide more career-focused support, but not more social support, than a non-supervisory mentor (35). A mentor who is also a supervisor may have more direct access to career-advancement information that would be useful to the protégé than does a mentor who is not a supervisor. The reduced social support may be due to a hesitancy to engage in behaviors that may be seen as favoritism by other employees. Finally, it may be problematic to have a mentor who is in a position to formally evaluate the mentee. It is important to remember that a mentor and a supervisor may have very different roles, and that a chair cannot be assumed to serve as a mentor for an entire program or department.

There is a general consensus in the mentoring literature that naturally developing mentoring partnerships last longer and are deemed more successful than institutionalized mentoring partnerships (36). However, a recent study indicates that highly facilitated formalized mentoring programs can result in many positive outcomes, including more positive job attitudes through higher levels of job satisfaction and organizational commitment (37). This finding implies that it may be beneficial for universities and other academic institutions to implement highly structured mentoring programs to provide formal mentoring to junior faculty. A formal mentoring relationship may be abandoned

if it is not beneficial, but it at least exposes junior faculty to the notion and importance of mentoring. This insight can encourage junior faculty members to seek their own informal mentoring relationships, which are likely to be longer lasting and more successful.

Mentoring can be very beneficial if the proper effort is put forth by both parties. Mentoring has been related to more clarity in a protégé's understanding of work responsibilities, as well as less conflict between the different areas for which a protégé may be responsible (38). Additionally, mentoring reduces perceptions of work-family conflict (39). Effective mentoring relationships have also been found to positively influence such tangible career outcomes as compensation, promotion, and reduced employee turnover, as well as improve overall job and career satisfaction (40, 41). In short, successful mentoring relationships produce more successful employees. The inference can then be made that successful mentoring relationships will result in more successful faculty, and potentially a better reputation for academic programs, departments, and institutions.

### **Faculty Mentoring as a Small Win at Auburn University**

Given the lack of literature on mentoring specific to higher education, researchers must turn to other sources to gain insight on how mentoring relationships can be used. The need for mentoring as a small win to improve the

university climate is evident from the response to Auburn's climate survey indicating professional isolation, as well as feedback from other institutions which suggest that mentoring is a cost-effective strategy for faculty development. There are several ongoing complementary mentoring programs and initiatives at Auburn University that support the goals of the ADVANCE grant, including programs provided by the Women's Initiatives Office, the WISE Institute, the Office of Diversity and Multicultural Affairs, and the Biggio Center for the Enhancement of Teaching and Learning, as well as programs within departments and colleges.

Mentoring programs at Auburn University in the Women's Initiatives Program include monthly informal networking opportunities for new women faculty to meet each other, as well as continuing male and female faculty. The program aims to provide a supportive network, possibilities for building research collaborations, and opportunities to learn from other faculty members about such topics as classroom issues, balancing work and family, and addressing departmental climate issues. Importantly, each of these events offers opportunities to interact with other faculty and learn about campus resources that can ease the transition into the faculty ranks, and develop both academic and personal social networks.

One very impactful brown bag lunch gathering included in the Women's Initiatives mentoring program offered a panel of three tenured faculty women representing several academic disciplines, who addressed the topic of

“Questions I Wish I Had Had the Courage to Ask.” The panelists openly shared their experiences during the pre-tenure years and identified topics and concerns that they felt negatively influenced their advancement. Concrete suggestions and practical advice were also provided, such as updating one’s vita every 6 months, asking colleagues both within the department or college and within the field to provide feedback on manuscripts, and providing guidance concerning appropriate and effective ways to request assistance and resources from department chairs.

The Women’s Initiatives Office has also established collaborations with a number of other campus departments and programs, including co-sponsoring programs that address concerns of women faculty with the Women’s Studies Program. Among the most successful examples of this alliance was a brown bag luncheon that addressed the treatment of women faculty in the classroom, including such issues as student disrespect; expectations that women faculty should be more nurturing than their male colleagues; and the impacts of gender on teaching evaluations. The discussion surrounding these issues not only focused on the problems but also included tactics that more experienced women faculty had used to address such issues.

Other campus organizations, including the WISE Institute, develop programming specifically aimed at the development and retention of female STEM faculty. WISE is governed by a Steering Committee that consists of women faculty and staff representing the Colleges of Agriculture, Sciences &

Mathematics, Veterinary Medicine, Engineering, Education, Human Sciences, Architecture, Design & Construction as well as the Schools of Pharmacy, Nursing, and Forestry & Wildlife Sciences. The Steering Committee members serve as liaisons with their respective units and provide feedback as to the effectiveness and relevance of programming.

The Office of Women's Initiatives, the *ADVANCE Auburn* Center, and the WISE Institute co-sponsor a Speakers Series that features well-known women faculty from other universities who visit campus for two days, during which they present a research seminar, as well as additional talks on issues facing women in under-represented disciplines. These invited speakers also meet informally with graduate students and women faculty to address issues facing the advancement of women faculty members. Typically, there are two speakers each year, in the fall and spring semesters, and efforts are made to ensure that the speakers represent the departments and colleges that comprise the breadth of STEM disciplines. During this past academic year, Auburn co-hosted three speakers with the Colleges of Engineering and Veterinary Medicine. Overall, the assessment feedback from faculty and graduate students who attend these regular WISE events is overwhelmingly favorable.

At times, efforts to develop professional networks have included support from beyond the Auburn campus. With support from the National Science Foundation, the WISE Institute recently collaborated with the *ADVANCE Auburn* Center and the Auburn University Graduate School to

sponsor workshops for women faculty, graduate students and postdoctoral fellows in STEM disciplines. Entitled “COACHing Strong Women in Negotiation, Communication and Leadership” the workshops were organized and led by the Committee On the Advancement of women in Chemistry (COACH). Through the use of self-assessment, experiential learning, and role playing, the two workshops offered attendees the opportunity to develop communication skills crucial to women seeking professional academic success. Each of the two workshops focused upon the needs of differing constituencies, with one addressing the needs of faculty and the other for graduate students and post-docs. Having a separate workshop for graduate students and post-docs also highlights the importance of socializing women students and providing them with opportunities for professional development, as well as addressing the types of issues they may face as women in fields where they will be in the minority.

While the various speaker visits are typically organized as discrete events aimed at mentoring an audience or workshop group, other campus programs have been developed to foster longer-term faculty networks through mentoring. For example, the Biggio Center for the Enhancement of Teaching and Learning has introduced new Auburn faculty to the university through their New Faculty Scholars program for several years and provides presentations on professional development and group-level mentoring that extends throughout a single academic year.

To ensure that new faculty are also provided opportunities for one-on-one mentoring, including mentoring on grant-writing and publishing, the Early Career Faculty Mentoring Program was initiated in the fall of 2009. Housed in the Office of the Provost, this program conveys a strong message about the commitment of upper university administration to supporting mentoring opportunities that will enhance the success of all new faculty members in their academic careers. The program also supports the Strategic Diversity Plan goal of recruiting and retaining minority and women faculty. In February of 2009, the first female Provost was hired at Auburn University, and later that year she convened a committee to plan this mentoring program. Committee members include the Associate Provost, the Director of the Biggio Center for the Enhancement of Teaching and Learning; the Diversity Faculty Mentor in the Office of Diversity and Multicultural Affairs; and the Presidential Fellow whose work in that role focused on identifying and addressing mentoring needs at Auburn University. The Assistant Provost for Women's Initiatives, who is also responsible for the activities of the *ADVANCE Auburn* Center, was asked by the provost to oversee the new mentoring program and to coordinate activities of this program with existing departmental mentoring programs and other faculty development programs on campus. Members of the committee meet regularly to discuss ways to provide support and mentoring for junior faculty.

The key elements of the program included inviting new faculty to participate and identifying mentors; coordinating activities of the new mentoring

program with ongoing efforts for faculty development; creating the mentor-mentee pairs; and maintaining contact with the participants over the course of the year. A mentoring website was developed and is available via the webpage of the Office of the Provost. The program is open to new faculty who are in their first three years at Auburn. Currently, 35% of participating mentees are in STEM fields; and roughly half of these STEM mentees are female. Program mentors are Alumni Professors, an honor given to a small number of faculty members each year as an indication of excellence in teaching, research, and service to the university and larger community.

Potential mentors and mentees receive a letter from the provost explaining the purpose of the new formalized mentoring program and inviting them to participate. Interested faculty members complete a checklist of expectations for their role in the mentoring relationship. The checklists used were modified from those developed by Brainard, Harkus and St. George (42), which have been employed in other academic mentoring programs such as those at the University of Missouri and fellow ADVANCE recipient New Mexico State University. Participants indicate areas of professional expertise (mentors) or development needed (mentees) and amount of time they felt they could dedicate to a mentoring relationship, as well as the types of mentoring relationships in which they would be interested in participating: one-on-one mentoring, mentoring circles, peer mentoring, or having multiple mentors. The checklists are used to match mentors and mentees. A mentoring contract

worksheet was provided to encourage mentoring pairs to outline the expectations and boundaries of their new relationship in writing. The pairs were asked to return these worksheets (as recommended by New Mexico State University) to the Office of the Provost because formally filing the contracts has been shown to foster accountability within a new mentoring relationship.

The Early Career Faculty Mentoring Program has helped spread awareness of the types of mentoring available to new faculty, not only through formalized mentoring pairs but also through co-sponsoring events such as the “Best Practices in Mentoring” panel with the Office of Women’s Initiatives and the Provost’s Office. This panel featured six tenured faculty who were recommended by their deans as outstanding mentors and are well known for their service to the institution. The main purpose of the presentation was to address mentors’ interest in learning about successful mentoring strategies from their peers. Panelists addressed the need for multiple mentors to aide with different areas of development at different points in time, as well as the need for mentoring at different levels, including program, department, college, university, and career. The panel also discussed the importance of being able to give and receive critical feedback, and the necessity of longitudinal mentoring relationships.

To assess the effectiveness of this new faculty mentoring program, an electronic survey has been sent to all participants in the program. Respondents were asked to identify specific aspects of the program that worked well, and to

provide information about suggested changes in the program. This feedback will be used to continually improve the mentoring program and ensure that the needs of participating faculty are being met.

*Interactive Theatre as a Small Wins Approach to Mentoring*

*ADVANCE Auburn* has incorporated the use of theatre techniques as a way to illustrate departmental climate issues and other barriers to the advancement of women faculty, an approach used by a limited number of *ADVANCE* institutions as a means of drawing attention to the issues faced by female faculty. One of our team members, a professor in the Theatre Department, combined the inter-active theatre techniques pioneered by Boal (43) and the gender schema concept of Valian (44) to script two original theatrical pieces. These scripts were designed to educate departmental and university administrators on the unique impediments to success encountered by female faculty, particularly those within the STEM disciplines. Semi-structured interviews with female faculty and administrators across the STEM disciplines at Auburn provided the basis for the scripts. The interactive scripts were then performed at two annual workshops organized by *ADVANCE Auburn*. At the request of the provost, the first script was also presented at the monthly meeting of department heads and chairs. Subsequently, all heads and chairs were invited to attend the second script performance at the next year's workshop.

While both scripts explored milestones within a female STEM faculty member's career, each emphasized a different critical stage of her career. The first piece, entitled "The Third Year Review," depicts a meeting between a male department chair and a pre-tenured female faculty member and their discussion surrounding the results of the faculty member's third-year review and progress toward tenure and promotion. The exchange between the faculty member and her department chair reveals the challenges faced by both participants with respect to the communication of clear expectations for tenure and promotion and how those ambiguities prevent proper mentoring of the faculty member. In the second script, "Beyond Tenure," the scenario illustrates an informal interaction between two male and one female senior faculty member immediately following the successful tenure and promotion vote of three junior faculty, two female and one male. The dialogue explores not only the senior faculty opinions concerning the likelihood that each of these newly tenured faculty will ultimately join their ranks as full professors, but also draws attention to gender schemas that are employed by both men and women in evaluating others, and the ways that these schemas contribute to the "tiny cuts" that impede the advancement of women faculty.

The interactive theater pieces draw upon the ideas of Forum Theatre, a theoretical perspective organized around the principles of Theatre of the Oppressed which advocates for dialogue as a teaching and learning tool. The goal of writing and presenting the scenarios was to promote reflection and

discussion among the audience and performers thus inspiring possible solutions to the problems faced by the characters, including effective mentoring techniques for administrators and senior colleagues and self-advocacy tools for female faculty. Upon completion of the scenes, audience members were divided into groups to discuss questions designed to: 1) assess instinctive reactions; 2) generate reflective responses and group discussion; and 3) identify specific challenges and effective solutions within the mentoring process. By being both observers and participants, members of the audience were able to debate a range of “best practices” for mentoring and advocacy that could be implemented within their own administrative units.

The interactive theatre pieces also meet the criteria of a small win in retaining female faculty in STEM disciplines at Auburn University. Both pieces seek to create change at the departmental or college level by achieving an awareness of implicit bias and a buy-in from administrators and tenured faculty in those units. In addition, not only do “The Third Year Review” and “Beyond Tenure” advocate proper mentoring for female faculty, but they also represent another type of mentoring. Just as female faculty need mentoring throughout their careers, so too do administrators. Departmental administrators often move into their positions with little previous education on the mentoring of their faculty members – their own experiences are all they have guide them. Their personal experiences may vary substantially from those faced by faculty today.

As the faces of faculty become increasingly diverse, so too will their mentoring needs.

### **New Mentoring Pathways at Auburn University**

In contradiction to traditional intervention approaches to improving female representation in the academic STEM disciplines, simply increasing the number of women in the pipeline to a critical mass alone is not sufficient to ensure that those that come after them be retained. While research by Kanter (45) suggests that while a strong minority presence of approximately 15 percent tends to improve the overall climate by gaining influence and self-perpetuation; higher percentages tend to result in the bifurcation of the minority group along generational lines (46). Often the most senior female faculty in the sciences achieved their success by following the model established by their male colleagues; however, younger female faculty members seek a path to academic success that allows for a balance between home and work lives. There is a need for a new generation of female STEM faculty who have successfully navigated work-family paths through academe to earn senior status as full professors and administrators. Not only would this help the STEM disciplines reach a critical mass of female faculty, but also provide appropriate mentors to those who follow their path to academic success.

Initiatives to mentor junior faculty represent small wins for Auburn University and other ADVANCE-supported institutions, but the *ADVANCE Auburn* cost-benefit analysis also revealed other important steps that can be taken toward institutional transformation for women in STEM disciplines. The results of the analysis suggest that the single most valuable small win that can influence the overall climate of a university for female faculty is facilitating female faculty participation in key academic committees. Membership in key academic committees, including those such as university-level tenure and promotion committees, allows female faculty to impact policy and the overall climate of the institution. Just as the number of female faculty must exceed a critical mass to reach beyond mere tokenism across the university and within the STEM disciplines, so too must the presence of females on influential committees reach a critical mass for true change to occur (47). Broad committee participation by female faculty would further contribute to the structural assimilation of women within the university and their ability to affect change. For women to obtain seats on these committees and represent the female perspective; however, they must often attain full professor status. As the “Beyond Tenure” theatrical piece illustrated, the mentoring of faculty, particularly female faculty, needs to continue even beyond the initial award of tenure and promotion to associate professor.

Auburn’s current ADVANCE grant has done much to support existing junior faculty mentoring initiatives but has also recently directed efforts toward

the support of women STEM faculty beyond tenure. Recently, *ADVANCE Auburn* hosted a workshop entitled “Post-Tenure Pathways” that emphasized the critical need to address the issues faced by mid-career female faculty in the STEM disciplines. Presentations focused on best practices for advancing women from associate to full professor status. As the work of *ADVANCE Auburn* suggests thus far, mentoring will play a key role in opening these new pathways.

Importantly, this discussion of mentoring efforts implemented at Auburn University reveals that successful mentoring is multifaceted. It must be offered in a wide range of formats and scopes so that one or more will be amenable to both mentors and mentees. Formal mentoring can occur at the departmental level or through university-wide programs, as evidenced in the Biggio Center’s New Faculty Scholars Program and the Early Career Faculty Mentoring Program’s one-on-one pairings. Equally important is informal mentoring by individual senior faculty with a vested interest in the professional success of their increasingly diverse junior colleagues. Informal networking activities for women faculty members provide an important source of social support and can offer opportunities to develop relationships with faculty outside of one’s home department. Such relationships can provide safe opportunities to share experiences and tactics for navigating departmental and college climate concerns. Seminar series featuring noted women from other institutions showcase these scholars as role models for academic women in STEM fields.

Additionally, their wealth of experience and advice are critical in identifying effective strategies for addressing challenges that academic women in STEM disciplines face. Successful faculty who have benefitted from effective mentoring can ultimately become strong mentors to others, provided they too have received guidance on how to mentor the next generation of faculty. Mentoring must become institutionalized; it must become the norm, not an anomaly in the academic career path for faculty. Support for mentoring at Auburn University spans across the university and has served to create organizational networks of faculty and administrators at all levels who recognize that the small win represented by mentoring can have big impacts.

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