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Interactive Panel on Perspectives and Practical Skills for Men as Advocates for Gender Equity

Dr. Lawrence J. Genalo, Iowa State University

Dr. Genalo is a University Professor and Associate Chair of the Materials Science and Engineering Department at Iowa State University. He is a Fellow of ASEE and has run the NSF Grantees Poster Session for nearly 20 years. He is a former chair of DELOS and the Freshman Programs Constituent Committee (the year before it became a Division).

Dr. Roger A. Green, North Dakota State University

Roger Green received the B.S. degree in electrical and computer engineering and the M.S. and Ph.D. degrees in electrical engineering from the University of Wyoming in 1992, 1994, and 1998, respectively. During his Ph.D. studies, he also obtained a graduate minor in statistics.

He is currently an Associate Professor and Undergraduate Coordinator with the Electrical and Computer Engineering department at North Dakota State University, where he teaches courses and conducts research in signal processing.

Since its inception in 2008, Dr. Green has been an active member of the NDSU Advance FORWARD Advocates, a group of male faculty dedicated to effecting departmental and institutional change in support of gender equality. As part of this group, he regularly trains men, at NDSU and other institutions, to better serve as gender equity allies. Dr. Green is the author of a series of advocacy tips, published by the Women in Engineering Division (WIED) of ASEE and available at wied.asee.org.

Dr. Beth M Holloway, Purdue University, West Lafayette

Beth Holloway is the Assistant Dean for Undergraduate Education and Director of the Women in Engineering Program (WIEP) in the College of Engineering at Purdue University. She is the current chair of the Women in Engineering Division of ASEE. Holloway received B.S. and M.S. degrees in Mechanical Engineering and a Ph.D. in Engineering Education, all from Purdue University.

Prof. Archie L Holmes Jr., University of Virginia

Archie Holmes, Jr. is a Professor in the Charles L. Brown Department of Electrical and Computer Engineering and Vice Provost for Educational Innovation and Interdisciplinary Studies at the University of Virginia. He received the B.S.E.E. degree from the University of Texas, Austin, in 1991, and the M.S. and Ph.D. degrees in electrical engineering from the University of California, Santa Barbara in 1992 and 1997 respectively. He joined the faculty at the University of Virginia in 2007. Prior to this position, he was on the faculty at the University of Texas at Austin where he held the Lybarger Endowed Faculty Fellowship. His current research interests include the design of novel infrared optoelectronic devices and how instructional changes can help students more quickly advance from novice to expert problem solvers. He has co-authored over 120 referred technical articles and has won numerous awards for his teaching.

In his role as Vice Provost, Archie's major responsibilities include areas related to the undergraduate educational experience including advising, expanding and enhancing university-wide high impact experiences, and connections between academic and student affairs. He also works on building the interdisciplinary capacity of U.Va. and further efforts to establish institutes and centers to foster interdisciplinary research and education.

Dr. Brian P Kirkmeyer, Miami University

Brian Kirkmeyer is the Karen Buchwald Wright Assistant Dean for Student Success and Instructor in the College of Engineering and Computing at Miami University in Oxford, Ohio. His background includes BS, MS and PhD degrees in Materials Science and Engineering (specialization in polymers), the former from Purdue University and the latter two from the University of Pennsylvania. He has work experiences in automotive electronics (Delphi Automotive Systems) and consumer products (International Flavors and Fragrances) prior to his current role. He served on the executive committee of the ASEE Women in Engineering division from 2010 to 2014.

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Prof. Klod Kokini, Purdue University, West Lafayette

Klod Kokini, Ph.D. is a Professor of Mechanical Engineering at Purdue University and the Associate Dean for Academic Affairs in the College of Engineering. He received his B.S.M.E. from Bogazici University in Istanbul, Turkey; his M.S.M.E. and Ph.D. degrees from Syracuse University in Syracuse, New York.

Professor Kokini's research activities include the study of failure mechanisms and design of high-temperature advanced materials such as functionally graded and composite ceramic thermal barrier coatings. He also works on interdisciplinary research related to the biomicromechanics of ECM-cell interactions.

He is an ASME Fellow (2002) and a Fellow of the American Institute for Medical and Biological Engineering (2008) as well as a member of the ASME Diversity and Inclusion Strategy Committee. He is also on the Board of Directors of WEPAN / Women in Engineering ProActive Network. He was a co-PI on Purdue's NSF ADVANCE grant for Institutional Transformation (2008-2013). He was the recipient of the Dreamer Award, Purdue University's highest award which recognizes contributions to diversity activities and named in honor of Martin Luther King, Jr. (2005). He was the first male recipient of the Violet Haas Award given by the Council on the Status of Women at Purdue in recognition of outstanding efforts on behalf of women (2007). In 2008, he received the ASME Johnson and Johnson Consumer Companies Medal, for his "unwavering commitment to diversity".

Dr. Daniel Lopresti, Lehigh University

Daniel Lopresti received his bachelor's degree from Dartmouth in 1982 and his Ph.D. in computer science from Princeton in 1987. After completing his doctorate, he joined the Department of Computer Science at Brown and taught courses ranging from VLSI design to computational aspects of molecular biology and conducted research in parallel computing and VLSI CAD. He went on to help found the Matsushita Information Technology Laboratory in Princeton, and later also served on the research staff at Bell Labs where his work turned to document analysis, handwriting recognition, and biometric security.

In 2003, Dr. Lopresti joined the Department of Computer Science and Engineering at Lehigh where his research examines fundamental algorithmic and systems-related questions in pattern recognition, bioinformatics, and security. In 2009 he became Chair of the CSE Department, and in 2014 he assumed the role of Interim Dean of the P. C. Rossin College of Engineering and Applied Science.

Dr. Adrienne Minerick, Michigan Technological University

Adrienne Minerick received her M.S. and Ph.D. from the University of Notre Dame and B.S. from Michigan Technological University. Adrienne's research interests include electrokinetics, predominantly dielectrophoretic characterizations of cells, and the development of biomedical microdevices. She earned a NSF CAREER award and was nominated for Michigan Professor of the Year in 2014. Research within her Medical micro-Device Engineering Research Laboratory (M.D. – ERL) also inspires the development of Desktop Experiment Modules (DEMos) for use in chemical engineering classrooms or as outreach activities in area schools (see www.mderl.org). Adrienne is currently co-Chair of ASEE's Diversity Committee and PIC I Chair; she has previously served on WIED, ChED, and NEE leadership teams and contributed to 37 ASEE conference proceedings articles.

Prof. Beena Sukumaran, Rowan University

Beena Sukumaran has been on the faculty at Rowan University since 1998 and is currently Professor and Chair of Civil and Environmental Engineering. Under her leadership, the Civil and Environmental Engineering Program has seen considerable growth in student and faculty numbers. Her area of expertise is in micro-geomechanics and has published over 100 peer reviewed conference and journal papers including several papers on engineering education and the unique undergraduate curriculum at Rowan University, especially the Engineering Clinics. She has been involved in various outreach activities to recruit more women and minorities into engineering and is Program Chair Elect of the Women in Engineering Division of ASEE. She is the recipient of the 2011 New Jersey Section of ASCE Educator of the Year award as well as the 2013 Distinguished Engineering Award from the New Jersey Alliance for Action.

Interactive Panel on Perspectives and Practical Skills for Men as Advocates for Gender Equity

Abstract

Men can serve unique and critical roles as advocates of gender equity, particularly in male-dominated units or organizations, such as most engineering departments and many universities. This panel brings together a group of men with diverse backgrounds and experiences to discuss their perspectives and offer practical skills for men to effectively serve as advocates for gender equity. This paper augments the panel and captures the backgrounds, experiences, perspectives, and recommendations of the panelists, thereby providing a lasting resource for those unable to attend the panel or future interested individuals. The information we present targets men and administrators, who will better understand the barriers to advocacy, learn best-practices of effective advocacy, and hear first-hand experiences of successful advocacy.

Background

Many factors – systemic and non-systemic, conscious and unconscious, policy and climate – can negatively impact the participation of minority group members in an organization.[1] Particularly when a majority group is highly dominant, these barriers pervade recruitment, retention, advancement, and overall climate; diversity suffers, and the overall effectiveness and health of the organization is diminished. Academia has a long history of dominance by men. This has been and remains particularly true in engineering, an example where "inequality regimes continue to be relatively resistant" to change.[2]

There is a growing body of evidence that men and majority individuals can serve crucial roles to support the advancement of women within organizations.[3-6] Online gender equity advocacy organizations, such as Men Advocating Real Change (http://onthemarc.org/home) also testify to the need and effectiveness of men as gender justice allies. To be effective, however, requires broad commitment and intentional and informed advocacy. Unfortunately, there are many forces that undermine men's participation as advocates, including apathy, lack of knowledge, and fear.[7] Men, especially those with a record of effective advocacy, can help promote men's engagement as advocates.

Panel discussion topics include
1) awareness of issues, including unconscious bias, male privilege, and unearned advantage,
2) individual-level advocacy: barriers and opportunities,
3) institution-level advocacy: barriers and opportunities,
4) advocacy best practices, including a focus on male advocates working with other men, and
5) examples of effective advocacy in action.

Panelist Perspectives

What follows are panelist responses to a variety of questions related to effective advocacy and representative of the panel discussion topics. The paper concludes by identifying common themes, advocacy best-practices, and how to take the first steps to get involved.

1) What is your current position and background?
Dr. Genalo: This is my 44th year at Iowa State University, where I am University Professor and Associate Chair of the Materials Science and Engineering Department. I was born in Brooklyn, NY, received a BA in Math from Hofstra University in 1971 and a PhD in Applied Math and Systems Engineering from Iowa State in 1977. During 2004 and 2005, I chaired the university level Campus Climate Implementation Committee. This committee suggested ways to implement changes to improve the campus climate after a detailed campus climate survey had been performed the previous year.

Dr. Green: I am an Associate Professor in Electrical and Computer Engineering at North Dakota State University, where I also serve as undergraduate program coordinator. Since its inception in 2008, I have been an active member of Advance FORWARD Advocates and Allies, which is a group of male faculty dedicated to effecting change at the departmental, institutional, and national levels in support of gender equality, particularly in the STEM disciplines. As part of this group, I regularly train men, both on- and off-campus, to better serve as gender equity allies. I am a member of the Commission on the Status of Women Faculty, a committee that works to develop and enhance gender-equitable policies at North Dakota State University. I am primary author of a series of broadly distributed advocacy tips, have participated in a national webinar on engaging male faculty as gender equity allies, and have given several conference presentations on the same topics. Additionally, I currently serve on the planning committee for the NSF-funded project Transforming Undergraduate Education in Engineering (TUEE), which has the goal of enhancing women participation and success in engineering programs.

Dr. Holmes: I currently serve as a Vice Provost and Professor in the Electrical and Computer Engineering Department at the University of Virginia. In addition to the opportunities that this role provide me to serve as an advocate, I also serve on the Management Team for the University of Virginia's funded National Science Foundation (NSF) ADVANCE program.

Dr. Kirkmeyer: My current position is the Karen Buchwald Wright Assistant Dean for Student Success and Instructor in the College of Engineering and Computing at Miami University in Oxford, Ohio. My background includes BS, MS and PhD degrees in Materials Science and Engineering (specialization in polymers), the former from Purdue University and the latter two from the University of Pennsylvania. I have work experiences in automotive electronics (Delphi Automotive Systems) and consumer products (International Flavors and Fragrances) prior to my current role. I have been in this role since June 2006.

Dr. Kokini: I am the Associate Dean for Academic Affairs in the College of Engineering at Purdue and a Professor of Mechanical Engineering. I have been an active advocate of diversity and inclusion in engineering for at least 15 years.

Dr. Lopresti: I currently serve as interim Dean of Engineering, and am also a Professor of Computer Science and Engineering. I have been at Lehigh for 12 years. Previously I spent 11 years in industry research labs (at Bell Labs and Panasonic Technologies). I started my career on the faculty at Brown.

2) What two or three events or experiences helped you become aware of gender equity issues, including unconscious bias, male privilege, and unearned advantage?

Dr. Genalo: In high school, I remember talking to a female student about college and career plans. We were the two best math students in school, and I was being advised to go into science or engineering while she was being advised to become a nurse or school teacher. I remember thinking something was wrong with that, but the greater impact was not felt until years later when I became a university professor and talked to female students about their plans for their careers. In 1964, we just accepted that those were the career choices for women, if they were not going to be stay-at-home mothers like almost all of our mothers.

Later, I attended a UMC meeting where presentations on unintended biases were part of the program. In one video presentation, you are supposed to count the number of basketball passes made by a group of players. In the middle of the video, a gorilla walks though the group, something almost everyone fails to see when they first view the video. It makes you question how our minds work. Later, we were shown a board room scene and asked to identify the boss. Basically everyone picks the man in the suit even when a woman sits at the head of the table. Absolutely eye-opening.

We can all become more aware of gender equity issues by being more observant. How many white males are on your faculty? How many are promoted? How many become upper-level administrators?

Dr. Green: Throughout my college years and early professional career, I was largely ignorant of gender equity issues. In my engineering spheres, no one talked about topics like unconscious bias, male privilege, and unearned advantage. While I recognized that women were underrepresented in engineering, I largely accepted this fact as something to be expected and never really questioned why it was the case; I certainly never considered how I may be contributing to the problem. In recent years, there has been substantial research and public discussion regarding gender bias and related topics, and these conversations have helped me and many other engineers better understand the situation and our responsibility to improve it. After attending a seminar on gender bias in letters of recommendation for students, for example, I was unpleasantly surprised to see evidence of such unconscious bias in letters I had written; I have used this awareness, however, to improve all of my letters of recommendation and evaluation.

Observing female colleagues subjected to sexism at work certainly provides motivation for better education and skills development. In my early years as a professor, I was shocked when a senior colleague sat on the lap of a female research student while having a meeting in my office. Beyond a gaping mouth and being speechless, however, I did nothing more to respond to the situation, and therefore utterly failed that student. Having never really considered such behaviors as possible, I was unprepared when the situation occurred. I gave much thought to the experience later, and that introspection not only prepared me to better respond in the future, but it solidified for me the need to engage men early in education and skills development. This is an extreme example, but education and skills preparation are just as important to deal with the more subtle, and more frequent, cases of gender bias and inequity.

Dr. Holmes: Early on in my career, I was fortunate to have taught a very, very strong female student twice: once in her first semester at UT-Austin and the second at the end of her third year. She was attending office hours and I happened to mention, in passing, that I hoped she was planning on attending graduate school. This was the FIRST time anyone had suggested this to her; I was shocked. She is easily among the strongest five students I have ever taught, and no one else ever gave her this encouragement.

I have also been in a position to see a recommendation letter written for two different faculty members (one male and one female) by the same person. All of the things that you hear about the ways that people tend to describe men and women differently in these situations were evident in these letters.

Dr. Kirkmeyer: One of the first experiences I had related to gender equity issues dealt with my supervisors for much of my professional career. From my final industry internship in 1994 until the 2010 retirement of my Associate Dean, every immediate supervisor of mine has been a woman. This helped me see first-hand the gender breakdown in the leadership of engineering organizations, how the majority of male engineers dealt with these women leaders, and how the understanding of these gender issues changed over a substantial period of time.

The other primary manner in which I experienced heightened awareness of gender equity issues was direct observation of the careers of my wife and mother-in-law as scientist and architect, respectively. My mother-in-law was in the first class of women architects to graduate from Ohio University, and spent much of her career as owner of her own architecture firm. She regularly shared with me the struggles that came with the territory, particularly in relation to bias and privilege. My wife's career has progressed from a technology support role to a leadership role, and along the way she has directly experienced gender bias from men. In both of their situations as well as my own, I have seen male privilege and unearned advantage in action, and it struck me quite negatively. I have used these experiences to try to bring to light these issues, and to try to break down those barriers whenever I can.

Dr. Kokini: My very first experience with gender bias was related to my daughter who, in middle school, as part of learning about careers was told she was going to shadow a female chemical engineer in a local company. She ended up spending a few hours with a clerical employee. Needless to say, I was not happy. Since then, I participated in many diversity and gender workshops where several individuals from underrepresented groups shared their experiences, such as not being invited to lunch gatherings, not being given credit for an idea in a meeting, not being respected as a professor in a class room environment, etc.

Dr. Lopresti: Discussions with faculty colleagues who are female have highlighted such issues on a number of occasions. These range from being told stories of the disrespect students demonstrate toward female faculty and a relative lack of awareness among male faculty of how this may lead to lower student course evaluations, to learning that female faculty feel more pressure to take on service responsibilities which are not as highly valued when it comes to tenure and promotion.

3) What two or three strategies do you recommend to help others become aware of these same issues in a non-threatening manner?

Dr. Genalo: One way to improve awareness is to attend a presentation on unintended biases, especially those with interactive components. Some, for example, include an exercise (or show experimental data from an experiment) where one group reads resumes of people with no names attached and choose the best ones for a new faculty position; another group then reads the same resumes with women's' names on the "best" and see who they choose as the new best. This is followed by another group with men's names on the "best."

We can also learn a lot just by reading relevant survey articles, such as why women leave engineering faculty or industry positions.

Dr. Green: Despite good intentions, everyone is susceptible to unconscious bias, and recognition of this fact opens paths to personal improvement. Researchers at Harvard University, for example, provide a variety of on-line implicit association tests that can be taken in private and can help individuals recognize their own unconscious biases.

Once we begin to recognize our own biases, men can better understand the nature and extent of the problem by doing some targeted reading. Many resources, such as http://wied.asee.org/AdvTips.html, provide broad selections of relevant readings, from research-intensive books to short articles that can be read in just a few minutes.

Dr. Holmes: First, listen to the stories of women faculty. Not only folks at their own institution, but also faculty they know from elsewhere. At the University of Virginia, our ADVANCE program is trying to help facilitate this with an initiative we call Reimagined Spaces—Voices and Visibility.   Another means of hearing these stories is to follow blogs that discuss this topic (e.g., Tenure, She Wrote, available at https://tenureshewrote.wordpress.com/).

Second, read some of the important literature on the topic. Two recent papers which I have found useful are Moss-Racusin et al.'s 2012 PNAS paper (Science Faculty's Subtle Gender Biases Favor Male Students)[8] and Sheltzera and Smith's 2104 PNAS paper (Elite Male Faculty in the Life Sciences Employ Fewer Women)[9].

Dr. Kirkmeyer: I cannot honestly say I have considered what strategies to use to help others become aware of these issues, because they are situation-dependent and usually reactive. I personally use humor and self-deprecation to address many issues in a non-threatening manner, and so I know I have done so with these. The reality is that it depends on the context of the situation related to these issues. In some situations, humor (and particularly sarcasm) has worked quite well in making others aware of how these issues are being perceived by others around them. In other situations, I have done so on a more private level by pulling the person aside and discussing it; this seems to work best when the others are ignorant of either the bias or advantage. In a minority of situations, I have been direct with others about the issues, usually because a situation was threatening to become offensive or effectively bullying. My best suggestion, though, is to pay attention to context and to use the strategy that will be most effective and appropriately address the situation within that context.

Dr. Kokini: I am a strong advocate of systematic, long-term education, continued conversations, and of establishing policies and practices which facilitate progress towards gender equity.

Dr. Lopresti: The most important strategy is to learn how to be a good listener. Beyond this, it is also useful to anticipate concerns that are not voiced for one reason or another (e.g., the faculty member may not wish to appear like a complainer). Understanding that such things happen in our daily professional lives should in no way be threatening. It is important, however, to remain non-accusatory when such issues are discussed.

4a) What do you see as the two or three most important barriers to individual-level advocacy?
Dr. Genalo: There are many perceived barriers to advocacy, such as individuals believing they are not well enough informed on the issues to act or feeling too busy with their own work and responsibilities. Some feel there is no reward to advocacy or even feel there is a disincentive because you will be seen as "rocking the boat."

Dr. Green: Prime and Moss-Racusin identify three common barriers to men as individual advocates: apathy, lack of knowledge, and fear.[7] I have observed, in myself and others, all three. I believe it is difficult to engage men who do not perceive gender inequity as personally relevant, which contributes to apathy. Even if men see gender inequity as personally relevant, it is difficult to identify, understand, and respond to gender inequity when individuals lack knowledge of the issues. Without having developed practical techniques and skills for advocacy, it is intimidating for most anyone to stand up and draw attention to themselves. Effective advocacy needs to address these, and other, barriers.

Dr. Holmes: First, concerns for the unstated views of peers. In my experience, many people are silent during the times I have played an advocate role. I do believe that can put people into a situation where they do not know how people feel about their actions and may discourage doing it in the future.

Related to this is lack of knowledge. The time that faculty spend on their teaching, research and service obligations can leave little time to really learn what another colleague does, especially one with whom you do not work closely. I think this concern for "looking dumb" discourages advocacy.

Third, no safe space to talk about these issues. As one of my colleagues here at the University of Virginia says, a number of men comment how"… risky it is for them to engage in discussions about gender/race (for fear of seeming racist or misogynistic, and/or being sued for discrimination)."

Dr. Kirkmeyer: The biggest barrier to advocacy is confidence in yourself and your beliefs. This takes time to develop because it truly has to be a core belief to develop that confidence. Confidence can be shaken when you are directly confronted with a situation where you do not want to say the wrong thing or be perceived as a poser. I think it is also a barrier if you are not willing to really look critically at what you say and do, and how those words and actions are perceived by others. I have been incorrectly called out before by others who feel that I am simply being politically-correct and not really a believer in equity issues. Because I have looked

deep within myself and assessed my words and actions, I have been able to readily counter those claims.

Dr. Kokini: Some of the barriers to individual-level advocacy are bias, culture, and a lack of understanding on the part of the majority on how it feels to be part of an underrepresented group.

Dr. Lopresti: Engineers and scientists often behave as though we exist in a perfect meritocracy, and hence we should not have to worry about discrimination or gender equity. An unwillingness to acknowledge reality is part of the problem. Also, what passes as academic rigor (e.g., in evaluations for tenure and promotion) can devolve into forms of aggressive behavior that inherently favor male over female faculty. Standing in opposition to such arguments can make one appear lax in enforcing quality standards, which may appear risky to some, especially junior faculty.

4b) What do you see as the two or three most important opportunities for individual-level advocacy?
Dr. Genalo: There are many opportunities for individual-level advocacy. We can advocate for metrics and rubrics to judge hiring and promotion practices; we can mentor other faculty, both male and female; and we can speak up in favor of changes to improve the climate.

Dr. Green: Given that most STEM disciplines remain stubbornly male dominated, there are necessarily many opportunities for men to advocate for gender equity. In my view, this advocacy needs to be primarily directed towards men. When men stand up for gender equity, they empower others to do the same. Men need to hold themselves and others accountable, but provide time and space for colleagues to improve. We need to be intentional in our advocacy efforts and accept primary responsibility to improve workplace climate. Fortunately, there is an ever-growing collection of resources to help individuals better understand the realities of gender bias. Finally, we need to be responsive to the needs of women in our advocacy work, which requires talking with, but mostly listening to, our female colleagues.

Dr. Holmes: Faculty on-boarding (orientation) programs are one example. Many places have orientations for new faculty. Having advocacy discussed at such events helps to signal how important it is for the institutions and I feel might give some faculty permission to be more vocal when they see others doing so.

Dr. Kirkmeyer: I believe that the more conversations, forums, etc. that happen in relation to advocacy, the more a community can be built and individual-level confidence can be increased. For a substantial part of my early professional career, I felt that I was the only male who was an advocate for gender equity. There was no community and no conversations about it with other men, which hindered my confidence. I confided in my supervisors and my wife, but that was only part of what I needed. As the conversations became more (though still minimally) prevalent, my confidence grew and thus so did my advocacy. The best way that individual-level advocacy can be developed is to continue to bring the issues to light.

Dr. Kokini: The opportunities for individual-level advocacy are to educate members of the faculty, staff, and students in a systematic way and facilitate conversations which enable a better

understanding and communication among individuals of different groups, hopefully leading to an improved climate.

Dr. Lopresti: Insisting that everyone be allowed to voice his/her opinion in an atmosphere of respect before outcomes are determined by a committee. Calling into question arbitrary conventions that are sometimes applied in ways which disadvantage female faculty. These are points that anyone can raise during group discussions, but it is often easier for a member of the majority to step forward as an advocate for the minority.

5a) What do you see as the two or three most important barriers to institution-level advocacy?
Dr. Genalo: Two barriers to institution-level advocacy come to mind. First, funds for any programs that improve the climate may be hard to find. Second, those in power may not see the urgency of the issues.

Dr. Green: Many institutions are male dominated, bureaucratic, slow or resistant to change, and guided by outdated policies. Faced with ever-decreasing financial support, increasing costs, and increasing research and economic development pressures, institutions often fail to prioritize or even recognize issues such as gender bias and institutional climate, which can require long-term commitments to realize tangible benefits. In the face of immediate needs and resource deficiencies, institutions tend to be reactive rather than strategic. Institutions sometimes approach problems in a competitive rather than cooperative way, where we direct resources to areas of highest perceived need rather than think of creative ways to use resources to simultaneously address multiple needs. All of these factors act as barriers to institution-level advocacy.

Dr. Holmes: One barrier is the perception of a strict meritocracy in the academy. Related is a similar perception that the playing field is level and any unevenness is due to the faculty member and not anything structural in the academy's policies.

Dr. Kirkmeyer: My institution's biggest barrier to advocacy is communication among related departments and academic divisions. We cannot collectively do the best we can do for advocacy if, for example, the sciences do not communicate and partner with engineering and computing, and vice versa. A very recent example of this just occurred here, and I am flabbergasted that people with whom I partner for curricular issues do not think to partner (or even make rudimentary contact) for advocacy issues. I cannot speak to how widespread the lack of communication is across the country, but it is a major barrier at my institution.

I otherwise believe that advocacy needs to be a formalized institution-level mission and goal, and it must be genuine. If it is not for the right reasons (such as public relations), then those individuals within the institution will see through it and potentially lose confidence and morale. It cannot simply be words or data; there has to be action, and institutions cannot fake this. I also believe that it is a barrier if the leaders of the institution do not speak and act consistently between their public and internal personas. These leaders cannot speak of how important equity is and then internally emphasize efforts that do not reflect this.

Dr. Kokini: The institutional barriers to advocacy stem from the lack of policies and procedures which traditionally have not considered the needs and realities of those in underrepresented groups. As an example, promotion and tenure (P&T) processes that do not make it easy to obtain tenure clock extensions need to be revised to facilitate the implementation of these policies without any burden to faculty who need them.

Dr. Lopresti: If slow-to-change institutional structures (e.g., attitudes of promotion and tenure committees, faculty "cliques") hold sway over more forward-thinking parts of the institution, there can be serious problems. Also, the simple fact that a group is underrepresented will mean that they are likely to lack a voice at certain levels in the discussion.

5b) What do you see as the two or three most important opportunities for institution-level advocacy?
Dr. Genalo: Three opportunities for institution-level advocacy include the establishment of family friendly policies, adoption of uniform metrics and rubrics for hiring and promotion, and requiring that search committees include an individual to ensure that gender equity best practices are used.

Dr. Green: Change, particularly at the institutional level, rarely occurs by chance and good fortune. Rather, institutional change requires careful planning and intentional efforts. Administrators or governing entities such as a faculty senate can, for example, establish committees to review and improve institutional policies from the perspective of gender bias. The NSF ADVANCE Institutional Transformation grant program provides substantial financial resources for institutions to rapidly and comprehensively address gender inequity in STEM, although successful grants require comprehensive planning and preparation, which is itself a useful campus exercise. Campus-wide training programs can improve the recruitment, retention, and advancement of women. In all cases, however, institution-level advocacy requires or benefits from the support of campus leadership and upper administration.

Dr. Holmes: For one, change the way hiring is conducted. At most places, administrators have to approve hiring. This provides opportunities to make sure that the school/department has a diverse recruiting plan in place as well as objective criteria for evaluation. These can be proposed by the school/department. In the end, it is then up to administration (Deans and Provosts) to enforce these with penalties for non-compliance.

Diverse seminar series also offer opportunities. Especially in STEM, we need to make sure that our seminar series are diverse in terms of who we invite. If the speakers are all male, that does send out signals about what a strong faculty member or researcher looks like.

Dr. Kirkmeyer: The primary opportunity for institutions is to create a mission and goal that is genuinely about the issues of equity, and to strive at every chance to advance that mission and goal. Working to generate real buy-in among faculty and staff/employees at every level is imperative; it cannot be a top-down mandate. Institutions should involve training and development opportunities to stimulate these equity beliefs. It needs to be an institution-wide priority and belief. It also needs to have a champion whose job it is to create and even force open the lines of communication among the various units that should partner.

Dr. Kokini: Every institution should review their policies and procedures with respect to their gender equitable characteristics. A faculty task force needs to be formed which include some faculty from underrepresented groups as well as administrators who implement policies. The task force should review procedures and equitable distribution regarding faculty hiring, faculty mentoring, P&T processes and outcomes, equitable salaries, space, etc.

Dr. Lopresti: Building an awareness among majority members of the institution who are willing to speak out when the need arises – cultivating a cohort of advocates. Providing thoughtful, well-conceived, non-accusatory messaging (whether it be via information sessions, training, written guidelines) to shine a light on practices that disadvantage female faculty.

6) What are the top two to three advocacy best practices that you regularly use or observe?
Dr. Genalo: I strive to apply consistent metrics to candidates for hiring and promotion. Additionally, I am willing to speak up when best practices are not employed. For example, when someone says "he will be a better fit for our department than her" or "her science isn't good," I ask them to explain how they came to that decision. What is "bad" about her science and how was it "good" in the other candidates? What does "fit" mean in relation to this candidate and our department, and how can we consistently evaluate candidates for fit?

Dr. Green: To begin, I let colleagues know that gender equity is important to me. Female faculty, particularly those in male-dominated departments, often have disproportionate service burdens. I make a conscious effort to volunteer to serve on departmental and university committees with a specific purpose of being an ally for gender equity. Women are also more likely to be interrupted than men and given less space to speak than men. I make a conscious effort to ensure all faculty have space to speak, and I redirect attention back to female colleagues when they are interrupted.

Dr. Holmes: Sponsorship I think is the best and strongest because it requires that you know the career plans of the person who you are sponsoring so that you can make sure your recommendations are aligned. Outside of that is advocacy. Like you do with your own work, you will have opportunities to mention the work that a colleague is doing. As with sponsorship, it requires that you get to know the work of the person for whom you become an advocate.

Dr. Kirkmeyer: As someone who is heavily involved in recruitment and student success of all students into my college as well as having teaching responsibilities, I have multiple opportunities to address advocacy. In recruitment, I am often asked (usually by parents) about our gender statistics. While our percentage of women in the college outpaces the national average (and I mention this fact to them), I also couch in the context that neither we nor other institutions should be satisfied by this fact. I want these families to know (whether or not they ask about women in engineering) that this field is one where there is no finish line with respect to the multiple type of inequity that exists, and that there will always be work to do. This usually has a positive effect on the families, more so than whatever the statistic says. In my teaching, I intentionally and specifically address gender (and ethnic) inequity. I have assignments and in-class discussions that aim to develop the notion that (1) this inequity exists and (2) that there are

ways to positively advocate for greater equity. Because my class bridges engineering and rock music, I can address it in both venues and draw parallels to more synergistic efforts.

Dr. Kokini: As mentioned previously, I do not believe that gender equity issues are the responsibility of only women. Accordingly, it is critical that members of the majority, such as men in this case, be involved in enabling change. However, in order to successfully engage this majority group, it is important to provide education about the issues. In the College of Engineering at Purdue, we have made diversity workshops available to our faculty since 1999. Currently, all newly hired faculty, regardless of rank, are required to attend such workshops. In addition, I organize regular, facilitated but informal meetings of faculty and staff titled "Inclusive Circles of Conversation." Finally, I try to impact gender equity nationally by actively participating in national efforts. I am on my fifth year as a board member of WEPAN, I am on my third year as a National Advisory Board member of ELATE (a Drexel-based leadership program for women in academic STEM), and I am a long-term member of the ASME Diversity and Inclusion Strategic Committee.

Dr. Lopresti: During committee meetings, I make sure everyone is allowed to speak his/her mind. I work to emphasize compromise and not "winners" and "losers" whenever possible. I encourage broader thinking to allow consideration of the benefits a more diverse faculty brings to the institution, as opposed to focusing solely on simple metrics like publication counts or the precise research area someone works in.

7) What are the top two or three most effective institution-level advocacy initiatives you have observed or experienced?
Dr. Genalo: Effective institution-level advocacy includes adoption of family friendly policies; increasing the level of awareness of issues and best practices using, for example, training programs for VPs, deans, chairs, and search committees; and making diversity in general a reporting point for administrators.

Dr. Green: In <YearBBB>, North Dakota State University received an NSF ADVANCE IT grant. This multifaceted program, which includes training men as advocates for gender equity, has made a dramatic and positive difference to me personally as well as our institution. Various committees, such as the Commission on the Status of Women faculty, have improved several university policies, including automatic tenure clock extension in the event of child birth or adoption, improved policies for the announcement and hiring of part-time administrative positions that serve as gateways to further advancement, improvements to dual career hiring policies, establishment of modified duties for childbirth and family care, and others. Several groups, including Advance FORWARD and the Provost's office, have worked to improve the clarity and transparency of search training, hiring, and promotion and tenure processes.

Dr. Holmes: At the University of Virginia, our NSF Advance program – in partnership with the Provost Office – is doing a search committee retreat/seminar each semester. This helps in a number of ways. First, it allows the Provost to show his/her commitment to this effort in his/her opening remarks and the topics for the meeting. It also allows for information on implicit bias, male advocacy, etc. to be provided to all members of all search committees. A third advantage I see in this is that it allows search committees to get together early on in the process and share

ideas related to the means by which a job is advertised, how the search is conducted, and so forth. Lastly, I think it does provide a "safer" space for these issues to be discussed than within a single search committee.

Related to this is making sure that search committees decide how they are going to evaluate candidates before seeing the CVs. This includes the weights they would put on various aspects of the application packet (e.g., how will previous teaching be weighed compared to publications compared to reference letters). A search I was part of did this and several diverse candidates rose near the top and were invited to interview.

Lastly, departments/schools can make it a priority to establish structures (i.e., committees that count towards normal service loads) to help address systemic issues. As an example, an upcoming publication by Carol Mershon and Denise Walsh focuses on the effect of a gender climate committee and women's caucus in politics to address these issues.[8] I feel something like this in our fields could also work as long as it is recognized appropriately.

Dr. Kirkmeyer: In the recent past, our college had a formalized declaration of one academic year as "The Year of Women Leaders." This allowed us to have women academic and industry professionals speak regularly to our students (including Engineers Week and our college's Recognition Ceremony) about their experiences and the evolution of gender equity issues. I believe that this was a successful effort on our part to bring the issue to the forefront through a positive celebration of their achievements. For my institution as a whole, I feel that the efforts have been there but not celebrated in the same manner. Out of our five college/schools, three of them have women deans. One of those deans was just named our new Provost. While this is a great development, the gender aspect of it was not made into an issue. Whether or not that is good or bad depends on your point of view. However, there are multiple examples where advocacy initiatives could have been far more effective through better communication and partnership.

Dr. Kokini: With regards to faculty searches in the College of Engineering, we have a college level committee, the Strategic Oversight Committee (SOC), which reviews all candidates invited for an interview. Thus, the SOC considers the pool of interviewees to determine if candidates are individuals who can make contributions to diversity, inclusion, and climate. In addition, Purdue recently completed an NSF ADVANCE Institutional Transformation grant with implementation of practices such as training of search committee chairs and members (including discussions of unintentional bias) and regular mentoring meetings for assistant professors. The same project has also resulted in Diversity Catalysts, which is comprised of highly successful senior faculty who are trained in diversity and inclusion issues and agree to be advocates and influencers in their departments, colleges, and the university.

Dr. Lopresti: Opportunities for members of the community to sit down and hash things out on their own, without too much heavy-handed oversight. Good intentions sometimes ring hollow if they are not well-calibrated to the audience. For most faculty, it is not a question of not caring – it is a question of not knowing, and then when informed, of having an idea of next steps to try.

8) Please describe a personal (but anonymized) example of intentional advocacy in action.

Dr. Genalo: During a search process a colleague said "her science is bad." I asked what does that mean – how was it bad? Did she misstate an important concept? A good answer was not forthcoming. To be honest, I am not sure how much that statement influenced the hiring decision, but that candidate was not hired (and has gone on to an exemplary career elsewhere), but I have not heard that sentiment voiced again on later searches.

Dr. Green: In recent years when I serve on search committees, I work to ensure that "a demonstrated record in support of diversity" is a preferred position qualification. Prior to screening applicants, I have the committee explicitly discuss how this and other qualifications will be evaluated, and I actively monitor for evaluation bias in female applications. These relatively simple steps have made the difference in hiring at least one female faculty in our department.

Sometimes a little knowledge is a dangerous thing, so I think men also need to be cautious in their actions, especially when first learning about gender issues. Early in my career, for example, I assigned my few female students to different laboratory groups with the good intention of increasing group diversity. It was not until a female colleague spoke to me that I recognized that this policy just further isolated an already marginalized group, likely impeded the success of these female students, and could actually reduce long-term gender diversity in my department. Needless to say, I no longer assign laboratory groups in this way.

Dr. Holmes: I serve on a number of technical committees that play an important role in helping people get strong reference letters for P&T. In a number of cases, I have advocated for young female, faculty members to be included in these committees and make sure that they were able to play an important role so that people would be in a position to be able to judge their research more fully.

Dr. Kirkmeyer: One example that comes to mind was an in-class discussion I was attempting to foster with my class of approximately 100 students. All students were college-aged (18-22 years old) with approximately two-thirds men, approximately nine-tenths Caucasian, and about half in engineering or computer science majors. The class itself was a liberal education course about engineering and global culture of a rock music genre. It took approximately half of the 60-minute class meeting to generate a majority level of acceptance among the students that they had experienced any of bias, majority privilege, or unearned advantage (we were discussing gender and ethnicity here). Prior to that, most of the women were convinced that it happened to others but not to them, and most of the men were convinced that they had never been unconsciously biased against others. By the end of the class meeting, I had made enough progress with the students that they had a rudimentary context to self-reflect on their personal experiences about gender equity. I followed this with a reflective essay assignment whereby students were required to take the next step and describe a basic advocacy plan. Based upon the results of both the discussion and the essay, I would say that this was the first time than many of these students had been required to hold a mirror up to themselves and ask these types of questions. I sincerely hope it opened some doors for them to walk through. I have continued this assignment in subsequent semesters, but the reaction to that first attempt was not replicated to the same extent. Perhaps that is good, but perhaps they played along better than the first group of students.

Dr. Kokini: I was once asked by a woman assistant professor at another institution my thoughts on having a baby before or after obtaining tenure. I told her that while I had opinions on the subject (men and women faculty should have a family when they want to and not tie it to tenure), as a male faculty member I did not have the same experience and suggested that she talk to senior women in her institution with the experience. She indicated that there were not any senior women there. I then put her in touch and facilitated her communication with some of our senior women who had had similar experiences. I believe she appreciated the opportunity.

Dr. Lopresti: Insisting during a recent faculty search that we not focus purely on (male) candidates who were strong in things we already do well, but rather giving serious consideration to two excellent but less-traditional female candidates and what they would bring to the table.

9) What are your thoughts, from first steps to necessary long-term commitments, to help achieve gender equity in the future?
Dr. Genalo: I believe the first step, if it hasn't been taken already at your university, is to review the campus climate on gender equity and outline a plan for institutional changes. At our institution this resulted in a report that produced a list of actions to be taken, who has administrative oversight on that particular action, what resources are needed and where they come from, the expected outcome, the rationale for this action, the status, and the time frame for completion of that action.

Over the long-term, reviewing and perhaps reforming the actions and seeing that the actions are carried out is important. This can be more difficult than it would seem as administrators who supported the actions leave and are replaced by people who are not vested in the process. Besides that, a program of continuing "awareness raising" and attention to detail (seeing that each search committee follows best practices, that each annual review includes gender equity and other diversity issues, etc.) brings institutionalization of the concepts and eventually acceptance of the importance of the issue.

Dr. Green: Gender equity requires intentional effort, whether individual or institutional, and must be valued, both individually and institutionally. Gender equity requires the active participation of the majority or dominate group, in this case men, who need opportunities to gain awareness, knowledge, and skills. Men should strive not to be advocates, but to advocate, which is to say that advocacy is something you do rather than something you are. It is important to recognize that efforts toward gender equity benefit the entire organization and all faculty, women and men.

It is also important to recognize that progress toward gender equality does not occur overnight and is not binary. Gender bias is highly complex and deeply and systemically ingrained into our society and culture. Gaining awareness is a gradual and continuous process. There is no such thing as being "enlightened" or "unenlightened", but rather a continuum between the two. And a person is continually moving along that continuum, both forwards and backwards. Mistakes will be made, by all of us, and we need to allow people to grow through their mistakes. When men share their failures as well as their successes, I believe they help foster a safe environment for growth.

Dr. Holmes: I think we need to get as close to a gender-blind evaluation process as possible in terms of deciding who to invite to campus for interviews. As first steps, I think we need:

- to educate people about how to write gender neutral reference letters;
- to use bibliographic software (e.g., Endnote) to create a report on scholarly output that does not identify the candidate;
- to develop plans to make sure that an applicant pool is diverse, not allow searches to proceed unless such a plan is implemented, and curtail current/future hiring should plans not be followed.

Outside of the interview process, institutions need to create transparent policies that do not require faculty to opt-in (e.g., related to childbirth/adoption and care of elderly parents), and clearly communicate how these policies benefit all faculty.

Dr. Kirkmeyer: Communication is the key to all of the efforts to achieve gender equity in the future. People within and among organizations must communicate to build trust and community. This starts with organizing ways for advocates to meet face to face and learn about each other. This continues with building mechanisms to communicate via current technology, and facilitating partnerships to bring advocacy to life through events that span silos. Those partners can then bring it to the communities at large via conferences and publications. It can further lead to large-scale and inter-institution and -organization partnerships that build the conversation into nationwide action. Leaders must talk the talk AND walk the walk by engaging at all levels of these organizations to develop that advocacy. While I realize that this may be idealized, I believe it must be grass-roots and not top-down.

Dr. Kokini: In engineering, the fact that approximately 85% of the faculty are male ensures that men dominate the culture, the rules, and the practices. Serious change is slow to achieve until the majority can appreciate the climate and difficulties that faculty from underrepresented groups experience. Culture change is difficult but not impossible. I believe education on bias, micro inequities, privilege, schemas, etc. is an important starting point. At the same time, it is critical to focus on institutional rules, processes and practices related to hiring, promotion, mentoring, retention, dual career, recognition, and family leave and to ensure that they are equitable. Accountability is also a key element. Provosts need to ask deans, deans need to ask heads, and heads need to ask faculty about progress, barriers, resources related to diversity, inclusiveness, and climate issues.

Dr. Lopresti: We need to attract more women to engineering at all levels and, once they have started, do a better job of keeping them in the field. We need to rethink the way we conceive and enforce academic rigor (in school) and job performance (in industry) to maintain quality at the same time we blunt the aggressive attitudes that discourage women engineers.

Conclusions and Recommendations:
Common themes between all the panelists' responses were noted on multiple questions. The reason most became advocates was due to personal experiences where they became aware of unconscious bias or racial and gender discrimination. These personal experiences ranged from interactions with students, family members, and colleagues. To help develop an awareness of gender and racial bias, panelists recommend creating safe zones where discussions about

literature related to gender bias or workshops addressing inherent biases can be conducted and discussed. Cultivating awareness of gender and racial bias can be done in various forums including the classroom, meeting rooms, and in everyday one-on-one or group encounters. Panelists concurrently conveyed that awareness and discussions to address bias slowly change individual perceptions, so efforts must be sustained via personal and institutional commitments. These efforts, while challenging, are extremely important to cultivate and enhance diversity within the STEM professions and academia.

Identified advocacy best practices include:
   a) Promoting awareness of gender and racial issues and adopting best practices by offering periodic workshops for new faculty, existing faculty, search committees, tenure and promotion committees and administrators.
   b) Using diversity enhancement measures as a means of evaluating the performance of administrators.
   c) Proactively advocating and sponsoring underrepresented groups by the majority population. This should be done on behalf of individual students, during hiring, promotion and tenure of faculty members to ensure their success and to create a welcoming climate.

The first steps to getting involved are by enhancing awareness of gender and racial discrimination at both the micro and macro scale by reading and talking to others. It also requires a personal commitment on the part of the majority population, which can only be sustained if there is institutional commitment to the process.

There is not a single solution or intervention to promote gender equity. But to deny a disparity exists at a given institution unless it can be unequivocally quantified as significant and statistically so is an excuse to do nothing to mitigate the disparities that do exist. This denial sometimes happens when a leader or institution is unsure of where to start or afraid of what might be uncovered next. However, action must be taken if change is to occur, and these recommendations are informed ways to start taking action.

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