

Promising Practices for Improving the Inclusion of Women in Science, Engineering and Medicine: Lessons from Kuwait and the United States

Session 3: Mentoring and Organizational Change

Session Chairs: Ameenah Farhan, Kuwait University; Sapna Cheryan, University of Washington

The importance of mentors and broader organizational structures has been firmly established in improving women's participation and retention in STEM. This session will discuss the definition of mentors (including different types of mentors, such as parents, teachers, and peers) and how mentorship programs can be developed to support women. The session will also include information on the types of organizational structures that support women's success in STEM. Discussions will address the following topics:

1. How to create and develop a mentoring culture
2. The role of different types of mentorship and organizational structures in creating successful STEM environments for women
3. Challenges with mentorship and organizational change

Women/Girls in STEM; Real Numbers, Challenges and Solutions

Maha A. Al-Mozaini, King Faisal Research Hospital, Kingdom of Saudi Arabia

Advances in Science, Technology, Engineering and Math (STEM) have already brought improvements in many aspects of our life such as in health, agriculture and renewable energy. STEM education is also a key for preparing students for the professional work, enabling entry into in-demand STEM careers of tomorrow. While much has been gained and accomplished for aspiring girls and women in STEM, many have been sidetracked by a lack of confidence, encouragement, connections or opportunities from childhood and/or later. In this talk we will discuss the following; (1) the need of more Women in STEM, (2) Where women stand in STEM, not only at a global level but within our region as well, and finally (3) identifying the factors and reason for limitation of women pursuing STEM careers.

In addition, we will also discuss the different roles of mentors and organization to empower more women into STEM, focusing on three key areas: socializing in STEM early in life, building confidence through role models and networking, and providing or enhancing development programs that move more women forward into STEM careers.

Maha Al-Mozaini

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Dr. Al-Mozaini is a scientist that gained ample experience in both immunology and Infectious Disease in Clinical Research during her PhD training at the Imperial College, UK, and during her research fellowship at the Infectious Disease Division of Massachusetts General Hospital, Harvard Medical School. She established and is the director of Immunocompromised Host Research. Her research focuses on different immunosuppressed populations of patients, namely HIV, Mers CoV, MTB and organ recipient patients. She founded the first HIV/AIDS laboratory within the Kingdom. Her research is not limited to basic sciences in infectious disease, but also explores better management and designing strategies for preventing such infections. The vision of her research is improving the investigations in transplantation and reducing the chance of post-transplant complications and infections. In addition to exceling in investigating research issues related to patient care and fulfilling the mission of the KFSHRC vision towards personalized Medicine in Infectious Disease, Dr. Al-Mozaini, is an Adviser to the National AIDS Program, and World Health Organization (WHO) Regional Office of Eastern Mediterranean (EMRO). She is also an Adjunct Associate Professor faculty at the school of Applied Medical Laboratory Sciences, King Saud University, where she teaches the Medical Virology course. She has been awarded with the L'OREAL-UNESCO for Women in Science Award in the MENA Region for 2015, The Golden Award for Achievements in Science, from the Arab Women Council, 2016, and was awarded as a Pioneer in Science from the Arab Health Global Awards, 2019. Dr. Al-Mozaini was recently appointed as a liaison officer with the Ministry of Health for research on MERS-CoV. In addition her laboratory was chosen to be one of the infectious disease satellite research laboratories for King Abdulaziz City for Science and Technology, as a national initiative to combat emerging and re-emerging pathogens.

Dr. Al-Mozaini is a scientific member on regional and global committees, the latest being selected to participate in the Coalition of Epidemic Preparedness Innovations (CEPI) Scientific Advisory Committee, Norway which is a global funding institute to combat infectious disease. She was also appointed as a jury member for L'Oreal UNESCO Women in Science for the Middle East. She is an activist for HIV/AIDS awareness and research and is an advocate for women empowerment in STEM, research, and innovation.

Mentorship in the Current Scientific Community of Kuwait: Where Are We? And Where To Go From Here?

Dareen Almojil, NYU Abu Dhabi, United Arab Emirates

The translation of the word “mentor” in Arabic can lead to a list of different Arabic words with a range of different meanings. Given the multi definition of the word “mentor” in Arabic, mentorship has developed different meanings to different people. My understanding of mentorship has changed tremendously through my study years. From the time of my undergraduate in Kuwait through my PhD in the UK, where I have experienced and gained deeper understanding of what is meant by “organic mentorship”.

In Kuwait, organic mentorship has naturally developed between family members, and friends. However, organic mentorship in the scientific community of Kuwait appears to lag behind. In this talk, I will share with you: 1) preliminary findings on the status of mentorship in Kuwait; 2) discuss the obstacles that had possibly hindered the development of organic mentorship in Kuwait; and 3) briefly identify what is needed to foster a culture that encourages the blooming of organic mentorships in Kuwait.

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Dareen Almojil is a post-doctoral associate at New York University, Abu Dhabi. She is currently working with the Evolutionary Genomics Laboratory and the Environmental Genomics Laboratory at NYU. With the former lab she is researching the population genomics of wild *Xenopus laevis* and its mysterious adaptation to challenging conditions in South Africa and Western France. While with the later laboratory she is exploring changes in the epigenetic profile of malarial children of Burkina Faso in response to *Plasmodium falciparum* infection and treatment. She obtained her Master's from James Cook University in Australia, followed by a PhD from the University of Cambridge, UK where she investigated the population genetic structure and reproductive behavior of sharks to serve their conservation. During her PhD, she published her first book, *Sharks and Rays of the Arabian/Persian Gulf*, and took part in a documentary called “Arabia's Sharks: A journey of Discovery” which was aired on Discovery channel in 2016.

The Role of Mentoring in Bridging the Gap between Studying to be an engineer & Becoming One: a social cognitive approach

Malak Al-Rasheed, Kuwait University, Kuwait

Globally, women continue to be underrepresented in many science, technology, engineering, and mathematics (STEM) disciplines. In Kuwait, despite of the fact that women outnumber men as students in many of these fields, the same rule applies when it comes to career choices after graduation. Limited workforce diversity has negative implications for scientific innovation, creativity, and social relevance. Several theories and models can be used as a basis for identifying factors that influence interest in STEM careers. Departing from a social cognitive career theory approach, the current study investigates the role of mentoring in promoting persistence to women in engineering careers by means of creating a sense of professional identity and belonging. A total of 115 females (27.8% engineering students at private universities, 22.6% at KU, 20.9% engineering graduates, 20% engineers, and 8.7% engineers working in non-engineering fields), completed a short online survey created by the researcher. The survey has two parts; the first covers demographic variables (3 items), and the second covers Mentoring (2 items), self-image (1 item), sense of belonging (1 item), professional identity (1 item), and persistence (1 item). The presentation will reveal the quantitative results generated from the survey data, and a qualitative discussion of the underlying meanings of the numbers within psychosocial and cultural context.

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Dr. Malak Al-Rasheed is an Associate Professor of Clinical Social Work at Kuwait University. She has a PhD from the University of Denver, CO; MSW from the Washington University in St. Louis, MO; and a BA from Kuwait University. Her research interest stretches to cover a variety of topics related to marginalized and special-need groups such as domestic violence, child sexual abuse, youth resiliency, incarcerated women, mental health, and trauma. She has lectured internationally and regionally on her areas of expertise, joined the San Francisco State University as a visiting professor in 2008-2009, and her work has been published in a number of specialized peer-reviewed journals. She recently completed a three-year term as a member of the Supreme Advisory Council for Family Affairs, as the Head of the multidisciplinary team for the assessment and the establishment of the first shelter for battered women and their children in Kuwait, and she was the writer of the latest Kuwait National Report on Women to the ESCWA 2019. Among other positions, Dr. Al-Rasheed is currently serving as a member of the GCC Secretariat's Committee of Experts on Social Affairs representing Kuwait (since 2015), as well as Vice President of the Kuwaiti Social Work Association (since 2014).

Reconceptualizing Mentoring

Joyce Yen, University of Washington, United States

Mentoring in STEM has traditionally been conceptualized as a hierarchical, dyadic experience where a senior person imparts knowledge and support to a junior person. This traditional “mentor as guru” model is flawed. Often it is not attentive to the intersection of social identities and mentoring experiences. Moreover, it creates unrealistic expectations about mentoring and mentors. Mentoring can and should occur through a variety of models because people have a wide variety of mentoring needs. This talk reconceptualizes mentoring and explores organizational change through the lens of creating a culture of mentoring.

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Joyce Yen, PhD, is the Director of the University of Washington (Seattle) ADVANCE Center for Institutional Change. She focuses on advancing women and underrepresented minority faculty in STEM fields and leads faculty professional development programs. Through her national and UW campus work, she has provided professional development to hundreds of faculty, postdocs, department chairs, and other leaders. An accomplished workshop facilitator, Dr. Yen has educated others and provided leadership in the field by facilitating over 100 workshops, retreats, trainings, and other events focused on diversity in STEM, bias, cultural change in academia, and other related topics. She has spoken at dozens of national and international meetings. Dr. Yen has received over \$7 million in grant funding (17 grants) to support this work. Her MSc and PhD in Industrial and Operations Engineering are from the University of Michigan, Ann Arbor; and her BSc in Mathematics (honors program and highest distinction) is from the University of Nebraska - Lincoln. She received UNL's 2004 Outstanding Young Alumni Award, the 2012 UW David B. Thorud Leadership Award, and the 2017 WEPAN Inclusive Culture

Do Diversity Awards Discourage Marginalized Groups from More Lucrative Opportunities?

Adriana Germano, University of Washington, United States

Four studies reveal that offering diversity awards, i.e., awards for marginalized groups, can have unintentionally negative implications for equity. When two unrestricted awards were offered, marginalized members were more likely to select the more lucrative award. However, when the less lucrative award was a diversity award, marginalized applicants were more likely to apply for (Studies 1-3) and prioritize (Study 4) the diversity award over the more lucrative unrestricted award. Fit, or how much marginalized applicants felt the award was for someone like them, best mediated applicants' increased likelihood of applying for diversity over unrestricted awards. These findings suggest that diversity awards may be inadvertently siphoning marginalized applicants out of applicant pools for unrestricted awards. Greater examination of unrestricted awards is needed to increase their attractiveness and fit with applicants of marginalized backgrounds, especially in instances when diversity awards are also offered.

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Adriana Germano is a doctoral candidate in the Department of Psychology at the University of Washington. Before joining the University of Washington, she earned a Post Baccalaureate Certificate in Psychology from Columbia University and a B.F.A. in Creative Photography from the University of Florida. Her research investigates whether solutions meant to fix social problems inadvertently maintain inequality. Drawing on social, developmental, and cultural perspectives, she examines how seemingly beneficial equity practices (e.g., offering diversity awards) can have negative implications for marginalized groups.

Data Infrastructures for High Impact Research on Women in STEM

Chandra Muller, University of Texas Austin, United States

Evidence-based research on social structural inequality has the potential to impact policy at every stage of policy development, implementation, and evaluation. Indeed, the best policies are evidence-based. In most cases, no single data source or analytic approach has the capacity to address all research questions regarding a policy, and often times the most effective evidence draws from multiple sources and approaches. Data sources may range in origin from administrative and commercial databases repurposed for basic research to classical surveys, qualitative interviews and ethnographies. Effective approaches require the analyst to consider a range of issues, from data representativeness, sampling, and validity issues to how the component parts best complement one another to inform policy at different stages. Rapid technological changes present new opportunities and challenges. This presentation will cover basic principles in using data to inform basic research and evidence for policy to improve the representation of women in STEM fields.

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Chandra Muller is the Alma Cowden Madden Professor in the Sociology Department at the University of Texas at Austin. Her current research focuses on the long run effects of high school coursework on midlife work and financial security, health, and political participation at the intersections of gender, race and ethnicity, social class, disability status, and immigration status. She is a principal investigator on the High School and Beyond Midlife Follow-ups and the National Study of Learning Mindsets. She has previously led nationally representative studies of high school curriculum and effects on education and health (the Adolescent Health and Academic Achievement Study which added an educational component to Add Health), and of post-secondary curriculum (which added a post-secondary transcript component to the National Longitudinal Study of Youth, 1997). Her elected memberships include the National Academy of Education, fellow of the American Educational Research Association (AERA), the AERA Grants Board, and the Sociological Research Association.