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GENDER GAP

She persisted

Six women talk to Nature about navigating gender bias in academia.

There is plenty of evidence to show that gender bias plays out against women in academic hiring, tenure and promotion, as well as in teaching evaluations. The unconscious, ingrained nature of gender bias and discrimination can make these barriers pervasive and hard to prove.

Combined with widespread sexual harassment in both laboratories and fieldwork, these phenomena can drive young women away from academic careers.

Yet many universities, and some nations, are making progress in advancing women's careers. For individuals, however, it can be difficult. *Nature* spoke to six senior academic female scientists about their advice and strategies for navigating gender bias.

POLLY ARNOLD Seek senior allies

Crum Brown chair of chemistry, University of Edinburgh, UK, and founder of SciSisters, a network for senior women in STEM in Scotland.

When I was a junior academic, the university recognized that female faculty members were winning international awards, but they were not being promoted internally at the same rate as their male colleagues.

So they sent the junior female faculty

members on a leadership course — even though, according to external metrics, we were doing brilliantly. We all talked, and realized that we didn't need training to convert us into men. We needed more support as women who are leaders — such as opportunities to meet other female scientists and discuss our career plans. The more diversity you have on your team, the better your results.

Until that course, we hadn't met many women in the same position. It was lovely. The chance of being a lone woman in a senior position in science, technology, engineering and mathematics (STEM) fields is high, and we didn't have a way to find each other to share difficult stories.

SciSisters launched in 2017 as a Google map through which women can find each other ►

► locally. People can also look at the map to find an expert, or younger women can look for mentors.

To embed changes that counteract gender bias, you need to have buy-in not only from senior women, but also from senior male colleagues who will listen. If those people are in the room, then I feel supported, and not like the 'screaming feminist'. My department thinks about inclusion all the time. We are unafraid of calling each other out, probably because we all have coffee together frequently.

I use killer data to counter bias. I'll say, "Have you read the research that shows that women are perceived, by both men and women, to have spoken more in a conversation, even when they have spoken less?"

HOLLY DUNSWORTH

Model expectations

Associate professor of biological anthropology, University of Rhode Island, Kingston.

There is a bias among some university students, who are less likely to call female professors 'Doctor'. I changed my e-mail alias to 'Dunsworth' and my e-mail signature to 'Dr. H. Dunsworth', because I would get e-mails from students that started: "Hey Holly!". I want the same status and respect that my male colleagues receive.

I wear an academic robe to lectures. Students call me wacky, but it neutralizes judgement of my wardrobe and is one less thing for students to evaluate negatively about me. I thought it would take students' attention off my body and my clothing choices, and it did.

But I'm not trying to deny who I am. I have brought my son to class to model that this is also how professors can look. It's relevant to my research that adult female primates will, more often than not, have a kid hanging off them as they go about their work.

I explain to students why I do this. We talk about earning respect on the basis of how you look, and about data that show students hold higher expectations for female professors than they do for male professors.

Perhaps because women are seen as more nurturing, students expect to be cared for, and I get inappropriately personal e-mails from them that feel overwhelming. It's not a problem unique to women, but after conversations with male colleagues, I'd say it's worse for women.

So, to set a boundary, I have guidelines in my course syllabus that say, "You will receive some notifications about this course via e-mail. However, e-mailing Dr. Dunsworth is not part of this course." The guidelines encourage them instead to come to my office and talk face to face: "Let's be Stone Age humans together." There's been a drastic reduction in the number of pointless and inappropriate e-mails that I receive.

HANAN MALKAWI

Keep pushing

Vice-president for science engagement, Royal Scientific Society; microbiologist at Yarmouk University, Amman, Jordan.

When I finished my bachelor's degree in biology at Yarmouk University in 1981, I had the highest scores in the department. I was offered a scholarship to get my master's degree and PhD at a university outside of Jordan. I chose Washington State University (WSU) in Pullman, but encountered resistance from my extended family. I had grown up in a strict Muslim family, who felt it would be dangerous for a young, single woman to live alone in a Western country.

Even my undergraduate department chair suggested that maybe I should wait a few years, and get married first, before studying abroad. Despite the fact that my uncles were against my going abroad, my father insisted and said, "She has to go." I did go. I eventually met a man from Jordan who was also studying for his PhD at WSU, and we got married. After I earned my PhD, I returned to teach, and continued my career at Yarmouk.

I became dean for research and graduate studies, then vice-president for research and international relations. At one point, I was the only woman sitting on the dean's council, and I was responsible for a lot of committees.

It was a challenge. I perceived that because I was young and female, not all of them accepted me immediately. But my science background helped me to be wise. Sometimes, I treated all my dean colleagues and faculty members as if I were their sister, their peer, and not their boss. I would say, "These are the responsibilities, and we'll distribute them among all of us, including

me." At other times, I would have to be tough.

I worked alongside them for hours, helping and mentoring. After a few months, I gained their respect and their confidence.

Today, young, single, female graduate students still face the dilemma that I did about studying abroad. A few years ago, I knew a student in Jordan who was offered a scholarship to do her PhD in the United States. I went three times to convince her family. Her father finally said he would go with her for one semester. When she finished her PhD, she came back to Jordan as an assistant professor to be a role model for other young women here.

JESSICA MEIR

Build confidence

Comparative physiologist and astronaut, NASA Johnson Space Center, Houston, Texas.

At NASA, a lot of women don't dress in a very feminine fashion. In technical and operational fields, people tend to view women who look feminine as less competent. But if everyone dresses the same, we're never going to change anything. People should wear what they want to wear. For me, I can still be an astronaut and wear a skirt. If people see that, then they will not equate femininity with being operationally incompetent.

I've seen cultural differences in gender bias at other space programmes. Although I don't think the intentions were malicious, I've heard comments or jokes that would be sexist in my culture. Often, I just ignore it, but sometimes I try to turn it around with a quick-witted or sarcastic reply to make them see how absurd the comment is or to make them think a little bit.

My first battle with unconscious gender



Astronaut Jessica Meir at skills training for NASA.

JAMES BLAIR/NASA



Rebecca Calisi Rodríguez works with a rock dove (*Columba livia*) in her lab's aviary.

bias was experiencing impostor syndrome in graduate school. This was something I saw in almost all of my female colleagues, but only very rarely among the men. But during my PhD defence at the Scripps Institution of Oceanography in La Jolla, California, it was like a light bulb went on: "This is a ridiculous amount of work I've done. I do deserve this. I know more about oxygen depletion in diving penguins and seals than anyone." That gave me the confidence I really needed.

As women, we often find it hard to act or portray ourselves confidently. Even if we are more confident, we might use language or expressions that come across as not being confident.

Take that step back to gain perspective on your work. It's easy to get lost in the daily details. But look at it from the bigger-picture level, and appreciate it as if somebody else were doing it.

Make sure you are doing what you are passionate about. Your mannerisms will convey enthusiasm for it. And people will believe that you are capable and knowledgeable. Do something that gives you a sense of purpose. These things will make you a better advocate for yourself, and people will listen to and notice you because confidence comes out naturally.

As women, we need to be willing to promote ourselves, because it has an implication for our own success. We are not going to get that seat at the table if we don't grab it.

REBECCA CALISI RODRÍGUEZ Speak up

Assistant professor of reproductive biology, University of California, Davis.

When I started my position in 2015, there was a university-wide meeting for new faculty

members — on a Saturday. My husband, who was a postdoc at that time, also attended. We brought the kids with us and gave the 5-year-old the iPad, and I wore the baby carrier with my sleeping 3-month-old son.

We went around the table and everyone gave their name and department. My husband gave his name and, as I was about to speak, the man to my right started instead. They skipped me even though I was sitting right at the table.

I navigated this by being vocal. I spoke up: "Hey, I was skipped over. I'm faculty in the neurobiology department." The room just paused.

I decided right then that I was not going to be overlooked. But being overlooked as a woman at meetings happens all the time. Or I'll say something that will be interrupted by a man, then restated and credited to him.

I want the credit for my ideas, but I also don't want to rub my colleagues up the wrong way. And as women, if we're really forceful, then we're seen as too aggressive. It's a fine line. My female colleagues and I are being strategic to help amplify each other's voices. When another woman speaks up in a meeting, we restate it and credit that woman specifically.

I was given terrible advice early on to view other women as adversaries and to outshine them. But the truth is, we rise by lifting each other. And it's not specific to women. Men can also amplify the voices of female colleagues to create equity.

At conferences, everyone needs to increase their tolerance for tiny interruptions by tiny people or breastfeeding mothers. By supporting women's needs and a culture of inclusion, we'll retain more women.

I tell young women that these problems are everywhere, not just in academia. That might sound negative, but I don't want them to leave academia thinking things will be better elsewhere.

Still, things are changing. There's a huge community of women, men and non-binary

people — so many allies out there who are becoming more vocal. Look for these groups. Look for supportive mentors. I'm going to be here to help make that change.

JAELYN EBERLE Do your homework

Vertebrate palaeontologist; director of the museum and field-studies graduate programme at the University of Colorado Boulder.

You need an excellent mentor of any gender. Get to know people, see how they react to situations, and find somebody whom you have considerable respect for and get along with. They should be senior enough to have experience and clout at your institution.

Stay clear of unhappy people who have a jaded opinion of the university. You need someone who is willing to go to bat for you and has a positive, forward-thinking attitude. If you don't get assigned a mentor, or one doesn't work out, go to your department chair with three suggestions of people you'd like to have as your mentor.

Another piece of advice for new faculty members: negotiate at the very beginning. That's hard, but really important. You've got to do your homework to learn what someone with your education and credentials normally receives as salary and lab space.

Negotiate at those big times of getting tenure and promotion, too. Find out what other professors in your department were promised when they made tenure. Ask to be paid equitably with others at your ranking.

Running expeditions in remote places such as the Arctic for weeks or months at a time taught me quickly which personalities work and which don't in field teams. It's important to have gender diversity on every team.

You've also got to be capable of all the things the team will need to do. I purchased a shotgun and learnt how to use it, because all Arctic expeditions require a gun in camp for protection against polar bears.

Whether it is setting up the communications radio, knowing outdoor first aid or reading the weather to guide a helicopter coming in — if you are knowledgeable and feel confident about your skills out there, you'll make good decisions. Equip all your people, regardless of gender, with the proper skills, equipment and knowledge that they need, too.

In the end, we strive for people to be treated as people — not according to their gender identity.

When I'm discussing the evolution of mammals after dinosaur extinction, does it matter that I'm female? It shouldn't. ■

INTERVIEWS BY KENDALL POWELL

These interviews have been edited for clarity and length.