Details | **Transcript**

AMY GALLO: You’re listening to Women at Work from Harvard Business Review. I’m Amy Gallo.

AMY BERNSTEIN: I’m Amy Bernstein.

NICOLE TORRES: And I'm Nicole Torres. We know that many of you work in fields where men significantly outnumber women. Back when Kelly was a lead engineer at a manufacturing plant, she told us she worked amongst so few women that she counted them.

KELLY: The building that I came from, there's about 200 people, and there are 10 women. And then I moved to this building just a month-and-a-half ago and there's 200 people, and I think maybe there's 12 women.

NICOLE TORRES: Kelly has since changed jobs. Now she's a research and development engineer. But she's still counting the number of women in her workplaces. In her new office of about 60 people, there are seven. Then there's Meredith. She works in data science and has always been one of the few women, or even the only woman, on the projects that she's worked on. She emailed us after two of the three female managers in her department left and said that losing those role models was pretty devastating. And then there's Katie, who works in insurance. She wrote, "I have long held the belief that the men who hired me at 26, many of whom are still here, don't see me as a capable 41-year-old VP. They still see me as someone who could be their daughter."

AMY BERNSTEIN: All of these listeners wanted advice, they wanted to know about the subtle gender bias they felt, how to be their own role models, and how women working in male-dominated industries can bring other women along with them. So this episode we're getting into all that and more, and we'll be focusing on engineering here, one of many STEM fields where women are underrepresented. But we weren't just curious about women who are already

working in engineering. We were also curious about women who are preparing to enter the profession. Because a lot of the women who study engineering in college don't end up working as engineers. And a lot of the women who do decide to take a job in engineering end up leaving to do something else.

AMY GALLO: One of the places where the future for women in engineering looks promising is Olin College of Engineering in Needham, Massachusetts. Close to half the students there are women. We asked the school if a few of them would speak to us, and lucky for all of us they said yes. So I went to campus, sat down with two students and one of their professors, and they told me about the sexism they've seen so far as female engineers and what they're doing to fight it. Jessica Townsend teaches mechanical engineering at Olin, and Elena and Ana are in their senior year there.

AMY GALLO: Elena and Ana, I want to start with you. Can you tell me a little bit about why you were interested in engineering?

ELENA: I can start. I grew up with two parents who are both engineers. From the age of probably me knowing the English language my dad has been telling me that a mechanical engineering degree is a great basis for any career. And it was mostly a joke. They were very supportive when I also wanted to own a zoo and a bakery and whatnot. But I started doing robotics in fourth grade and that kind of continued with me all through high school. And it just seemed like the thing that I could always get excited about. And when I started thinking about what I wanted to do for college and what I wanted to do after, it kept coming back as this thing. It was like this is exciting, this is fun, I like math. Now here I am.

AMY GALLO: Right. How about you Ana?

ANA: I didn't really know what I wanted to do when I went into college. My dad was a chemical engineer, but he like switched from that to finance when he came here. And so when I was a kid he'd always be like math and science is a very good foundation to start in with whatever you want to go into. And by the time I got to my senior year we ended up doing a lot of talking about it, and like as a family we realized engineering was probably the most solid foundation for me to go into whatever I wanted to go into after I graduated.

AMY GALLO: Right. Jessica, what was your first job in engineering?

JESSICA TOWNSEND: Well, I had an internship experience at a radiopharmaceutical company. It was an interesting environment. I certainly got a flavor of what being in industry might feel like, enough to know that that was definitely not what I wanted to do right as I finished college.

AMY GALLO: Right. Well, what about it made you not want to do it?

JESSICA TOWNSEND: It wasn't as fun as being in college — and by fun being in college, I mean, besides the obvious parts of college being fun, I mean, you know, having a community in the engineering program that I was in, feeling like I got to know my professors really well, feeling like I was part of a community. And going into industry, that experience felt foreign. It felt weird. There weren't a lot of women. There were a few other interns, so there was a little bit of, Hey, we're in this boat together, but I couldn't develop a lot of meaning from that work. Even though radiopharmaceuticals, this was about healthcare, and about medical care, and about different kinds of approaches that

would make a difference in people's lives. But it felt so disconnected from that for me. So I thought, Well, I'm going to go back to grad school because I want to get more of this, want to study more, I want to learn more, but I want to get, I guess, have that community experience in a way that felt just more fun, more compelling, more meaningful.

AMY GALLO: Right. So how much of that feeling like, Oh, this isn't for me, I'm not finding meaning in this, had to do with the fact that you were a woman and there were few women in that field?

JESSICA TOWNSEND: I think it did have an impact. And the reason I say that is the second industry experience I had was a full-time job. So after I got my master's degree, I went to work for a relatively small aerospace company, or at least a small subsidiary of one. And my first manager was a woman. She was six months pregnant when I started. She was amazing. I remember just looking at her and thinking she — it was so clear in talking with her and seeing how she was engaged with and interacted with that she was very respected. She had clearly been supported. They had put her through various management programs that were really reserved for sort of their top tier people. And I remember she had fabulous dresses that she wore while she was pregnant. I thought, someday I'm going to like do that too. But that helped a lot to see, have my first manager be a woman. They hired a lot of women at my level. It was probably 50/50 in my incoming sort of set of new employees. And it was fun. It was just a different experience. And we were, you know, we were working on small gas turbines that serve as auxiliary power for aircraft. It wasn't — you know, you might say, Oh, is there meaning in that? The technical work was fun. It was heady. There was a little travel. We were testing and

analyzing and the teams would change around every six to eight months. It felt very dynamic, not at all old school, which is what I had expected a little bit from an aerospace industry.

AMY GALLO: Right. So Elena and Anna, when you think about going out, getting a job, do you think about gender and whether or not you'll be in the minority or majority in your field?

ELENA: Yeah, absolutely. When you're thinking about a place to work that's going to be where you're spending a lot of your time. And especially as a new grad, there's sort of an expectation that you prove yourself and you work really hard all the time. And I think having women around, and especially like the opportunity to have a female mentor like that as your manager, is so empowering. Like I, especially at Olin, we have a ton of female professors — and you know, it's not perfect — but so many more than a lot of other universities I've visited. And it's amazing to see them come in and teach class every day, and like know that I could go do that. So I think it's a big thing when I'm looking at places to work.

AMY GALLO: Yeah.

ANA: Usually when I think about going into work, it's like thinking about being a woman in a place that's predominantly men. And then I also think about like other parts of my identity and other people's — like, I'm a woman of color. So then I think about being in like a predominantly white space and how that also makes it difficult, like in some cases to speak up. And right now it

doesn't always feel like something that's going to be a huge deal. But I know that once I'm actually working somewhere and I'm like cemented in that it'll be something that I feel no matter what decision I make.

AMY GALLO: Is there anything you're doing to prepare yourself to possibly be one of few women or one of few people of color in your job?

ANA: Well, right now I just insert myself into spaces that I feel like I'm not — that aren't designed for me necessarily, or that I don't see a lot of people like myself in. And in college it's, that's something that's very different because when I get to my senior year, I'm like the top dog, I guess. [LAUGHTER] So it's when like underclassmen see me in a space, they're like, I can do that too. And that has felt really good and rewarding. And being able to like speak up for myself or make — I did this thing, my new year's resolution this year was to, whenever I heard people talking about something that was like blatant misinformation or disrespectful, that I would speak up. Which is really hard to do and also really tiring to do, but I realized that I felt really bad when I didn't do it. And that I think will help me a lot in the workplace when I leave. Just being able to speak up for myself — or for others, if I see something that's not, doesn't feel quite right.

AMY GALLO: Right.

ANA: Yeah.

AMY GALLO: That's a great new year's resolution. Have you, I'm assuming as a senior you've done internships, is that right?

ELENA: Yeah.

AMY GALLO: OK. Have you, what's that experience been like? You've been in this bubble of, you know, 50/50 gender representation at Olin College of Engineering, and then you go into the real world. Has it been strikingly different?

ELENA: I think on the whole, I've been fairly lucky that I've gotten to work on teams that have been really supportive. Those teams have not been 50/50. I've definitely still been in the minority on all of the engineering teams I've been on. But I have been lucky to have very supportive male colleagues. But something that I sort of realized was coming in as an intern, people are always super excited to meet interns, and they're like, Oh, you're doing great things, this is so exciting. Here's this project you're doing. So it's a little bit easy to miss the gender dynamic between the full-time employees. So I was at a job one summer and I was having a great time. I sat surrounded by men except, you know, one woman behind me and then one farther down the row. And at some point during the summer, one of them came up to me and was like, I hate how the guys always go and get coffee together and they never invite us. And it was like, Oh, I never even thought about that. And then, you know, it was something that I thought about more. And then I started to notice the gender dynamic. And I realized it was like, Oh, this isn't something that is immediately everyone sees it. Like this is something that builds up over time and it's not one big thing. It's these microaggressions that come out. And it's something that I think about now as I try to take note of those moments and think about different ways that I could make that better, especially when I'm going to be somewhere

for more than three months. Because over the course of three months, those wouldn't necessarily build up into something that I would get upset about all the time.

AMY GALLO: Right.

ELENA: But it is when I think about places that I'm going to go and work more long-term, something that I'm trying to figure out how do I even notice this before I say yes to coming here for it?

AMY GALLO: Right. So Jessica, why did you leave industry and go into academia?

JESSICA TOWNSEND: I always had a plan to be an educator. The reason I went into industry after my graduate degree, after my master's degree, was I had an undergraduate faculty member who was my advisor and he said — I told him I was interested in graduate school, especially after my summer internship, where I had a sense of what industry might be like. And he said, Jessica, if you're going to teach at the college level, especially if you're going to teach engineers, you should go be an engineer. You should go work for a company that makes a product for a customer. That has always stuck with me. And I thought it made a lot of sense for sure. And I kept that in mind. So I went, I did go for the master's. And then I very intentionally looked at industry jobs and found this job at the aerospace company, where I had a fantastic female mentor and had generally a good experience, which is a funny thing to say because, you know, when I think back on it there were pockets that were a harder space to be in as a woman. So the machine shop. You know, as a woman, I was often heading down there. I wasn't doing the machining. It was a

union shop. But I was interacting and directing our machinists and that never felt good. It just didn't feel like I had much respect or influence. And also we had a number of technical staff we worked with that would handle a lot of the tedious work that we were doing. Those folks were a little different. I worked with them more day to day, but boy, it felt like a year-and-a-half to two years of relationship building and trying to figure out, you know, there's this idea of everyone has a, their kind of secret trust test that you have to try to ferret out to understand how to get them to trust you, how to build trust with them. And I felt like I spent a year and a half trying to figure out this technical staff, how to connect with them. I'm thinking in particular of one person I worked with, who was always grumpy. And I think by the time I left he thought of me like a daughter, which is also maybe not a totally appropriate feeling in a workplace environment, but you sometimes you take what you can get, you know, and it was a positive relationship where I could be productive, I could get my technical work done. I knew I had a partner to work on it with — great guy, but it doesn't always feel comfortable, you know, you kind of take what you can get.

AMY GALLO: Right. Did you see that same person treat male colleagues differently?

JESSICA TOWNSEND: Oh yeah, absolutely.

AMY GALLO: How so?

JESSICA TOWNSEND: They're in the club, you know. The secret trust test had already partially been passed.

AMY GALLO: Elena and Ana, when you hear stories like that, do you think, Oh no. Or do you think, OK, I can handle that? How do you react to hearing what it might be like for you?

JESSICA TOWNSEND: That was a long, long time ago. [LAUGHTER]

AMY GALLO: That's fair. It's funny, I was telling Amanda on the way here, I was saying that when my mom used to tell me stories of, you know, she would always try to balance confidence building, giving me the tools I need with also a little bit of caution of here's what you might face. And I have to say the caution, when she would tell me what sexism I might face at work I would say, Eh, like she's a generation ahead of me. Things have changed so much. It'll be different for me. And I'm curious if you, do hear that story and go, Yeah, that's old, or do you feel like that might be something you face yourselves?

ELENA: A little bit of both. I think I'm excited. I think there's a lot of work that needs to be done. And I think that we are the ones that are going to do it. But it also makes me a little sad to hear stories, you know, from my mother from when she started working about experiences she had and knowing that like I might have those same experiences and I thought we'd gotten past this. Like, it's been enough time. I feel like we should.

ANA: I think like using, the concept of using connection to like game the system is something that I've learned over the last few years. It feels bad saying that because I also really like connecting with people and it's a genuine connection. But a lot of the times I don't think that I would necessarily get as far if I was just being purely technical and being like, I know how to do this thing, and I made it, and you need to do what I say. And instead like playing

nice — and also just going into spaces that are more technical. I wasn't super confident in my technical abilities because I was like a woman without a super strong technical background before coming into college. So when I'd interact with people, especially men who had strong technical backgrounds, or at least could throw around a few big words, I would just be like, Oh God, I don't know what I'm talking about and I'm just going to defer to what you're telling me to do. But then like building some sort of connection with people like that — sometimes they're just really excited and you can learn a lot from them. Other times they are trying to like dominate you in a work setting. But there's some people that I've worked with who I thought they were talking down to me and they weren't. Or I could just get a lot of knowledge from them by talking to them, even though I didn't know what I was doing. And other times I did know what I was doing and I had to learn just when someone was talking big.

JESSICA TOWNSEND: Well, the idea of forging a relationship with someone makes a collaboration more meaningful. It certainly makes it more compelling and valuable for me, and enjoyable. But the playing nice, yeah, it's in the tool box. And there's a line where it's worth doing up to a point and then kind of no more professor nice person anymore. You know, that's, there's going to be a limit. And figuring out that limit has taken years. That's not, I feel like I'm still calibrating.

AMY GALLO: Yeah.

ELENA: We have this really fantastic Facebook group for women that are currently at Olin and women that have graduated from Olin. And also there are some women faculty and staff that are in it. And people use it as a space to

share experiences, to ask for advice, all that stuff. But seeing women that are currently in the workforce telling stories about, Oh, I had this experience, what do I do? How do I deal with this? You know, potentially, you know, gender discrimination or whatnot. It's like, I'm don't know if I'm that excited to leave our little bubble where, you know, it's not perfect, but people talk about stuff and we tend to have, you know, pretty good experiences. But kind of going back to what I said earlier, I also feel conflicted of like, I'm excited, I want to go make change, but also sometimes I feel like this push to make change in the workplace falls on the women. And at Olin I think we try to keep a very open discussion about this is everyone's job to make this better because it's going to be better for everyone once it is better. And I don't think that that is necessarily a conversation that is happening in enough workplaces right now of it's not just the women's place to make themselves feel more comfortable or to make themselves heard or to sit up at the table. It's also the people that are surrounding them that aren't necessarily supporting them and they need to do that as well.

AMY GALLO: As someone who educates future engineers, if you could sort of deliver, you know, one or two key messages to male students who are going off in the world and want to be supportive of their female colleagues, what would you tell them?

JESSICA TOWNSEND: Listen. Listen. Listen, believe, validate. And if you can, learn how to be an ally.

AMY GALLO: You both, I heard audible nods to the listen comment. I'm curious if that's something that's really important for you?

ANA: Yeah, like listening and validating someone's feelings, not just being like, Oh yeah, you felt that. Like, I get it. And then doing the same thing in another scenario. But actually learning from what experiences that people are telling you is super important.

AMY GALLO: And what would you say to your male colleagues, classmates here who want to be supportive when they are out in the workforce?

ELENA: I think really similar to Jessica, listen and validate. I think this might not be a gender split thing. This might just be my specific group of people that I hang out with. But I see a lot of my male colleagues, especially coming into Olin, you know, they didn't necessarily have a higher level of technical expertise than any of the women, but they did have that confidence. So they would talk about stuff and they were like, I'm going to go make something in the machine shop. They probably didn't know how to make anything, but then the women were like, Oh gosh, I don't know how to do any of this. Maybe they're just already more qualified. And over the last, you know, three and a half years of interacting with the same people, I've seen those relationships change as my female friends have grown more confident in their abilities and we've realized like, Oh no, like we are actually super smart. Like, what we're doing is really cool. The projects we're making are amazing. And so then we're able to have more of those conversations together of like, Oh yeah, let's go make this thing together. Or like, Yeah, can you help me with this homework assignment. That didn't happen at the beginning. So I think it's, you know, listen to what your female colleagues are saying. Tell them that what they're

doing is impressive and that they know what they're talking about because I think we sometimes have a tendency to cut ourselves down and not realize, and not accept how much we actually know.

AMY GALLO: So I have to ask you both the question. I know, I remember when I was a senior in college, I hated this, but what are you looking at for next year?

ELENA: I'm hoping to go straight into industry. Grad school is on my radar, but probably a couple years out at least until I figure out more of what I would actually want to study. I'm studying mechanical engineering here, which is a really broad topic. So I've tried to use my summers to kind of look at different areas of industry, hoping to go into some sort of aerospace.

AMY GALLO: Great. How about you Ana?

ANA: It changes like every week at this point. [LAUGHTER].

AMY GALLO: It is September. You have some time.

ANA: I've been thinking a lot about going into civic tech after I graduate. There's just like so much work that can be done that could be really helpful. So I think I want to go into an area where I can do that helpful work and be very close and like on the ground with it. So I don't know whatever that might look like, but right now I've been saying like civic tech, maybe some kind of consulting would be really cool. But I don't think that I necessarily want to stay in the field of engineering after I graduate. It might be a nice thing to do for like a few years right out of college, but I'm not sure if it's like the thing that I want

to, the field that I want to stay in for the rest of my — I don't think I'll want to stay in anything for the rest of my life, but I don't think it's like the one thing that I'm going to be doing forever.

AMY GALLO: Thank you all for this conversation. I've really enjoyed it and actually feel quite hopeful as a result.

ELENA: Great.

ANA: Awesome.

JESSICA TOWNSEND: Thanks so much, thanks for coming

ELENA: Yeah, thank you.

ANA: Thank you.

AMY GALLO: I got a lot out of talking with them. Amy B., I think it was you who suggested we check out what's going on at Olin, so thank you for that.

AMY BERNSTEIN: Yeah, it's a really special place. And it sounds like the students have a sense of the sort of sexism they're unfortunately likely to face once they start working in engineering.

NICOLE TORRES: It takes resilience to stay in male-dominated fields like engineering. Teresa Cardador has written about this for HBR. She's a professor at the University of Illinois Urbana-Champaign. She studies female engineers, and she's documented the stress they commonly feel working with mostly men, and how they cope.

AMY GALLO: She listened to my conversation with the women at Olin to help us connect what they said to findings from her research. And she also has advice for women working in other male-dominated fields.

AMY GALLO: Teresa, thank you so much for joining us today.

TERESA CARDADOR: Thanks for having me.

AMY GALLO: I'm curious what you heard in my interview with the students at Olin about the stressors that women who are preparing for a career in engineering are under. What stood out to you?

TERESA CARDADOR: Yeah, definitely there were some themes that I'm familiar with that came up during that interview. So the first one that stood out to me is some references to what seemed to be more subtle stressors related to sort of this feeling of minority or outsider status in a profession that seems to be kind of reserved for men. So Jessica talked about, you know, men thinking of themselves as already part of the club and women starting out feeling like outsiders and having to work their way in, and this is hard to do, right? This feels hard to do at times. And so some of the things that came up that other women that I've talked to have referenced quite a bit are things like it being a little bit harder to speak up. You feel like you're not being listened to. You might feel excluded. Definitely feelings of having to prove yourself. And even questioning yourself, you know, this idea of do I really belong here? Because you feel like you're outside of the club. So dealing with these kinds of subtle stressors is effortful and it can often be draining for people.

AMY BERNSTEIN: So what about the confidence gap that we heard about in the conversation?

TERESA CARDADOR: Yeah, so the confidence gap is really complicated, I think. So I think it gets back to this issue that I was talking about, which is that as a result of their, you know, perceived outsider status in this profession, women often assume that men know more than they do. Men often in these kind of more masculine, competitive, you know, kind of bro culture environments, may speak more confidently. I think one of the students in the interview talked about this idea that women tend to learn over time, that this confidence speaking as a signal for knowing more isn't necessarily the case. So they might learn over time that they do know as much as the guys do. But it lowers their confidence in the short run, these two factors combined. And so, you know, and I think the students even pointed to some ways that organizations can respond to this issue. One I think was mentioned was that they recognize and validate women for their good work and make a point of showing them that they do recognize their high levels of competence and expertise. But sometimes I often wonder — and there isn't research as far as I know to specifically look at this or to support this idea — but I often wonder if the solution is sometimes to give men a little bit more permission to share their vulnerabilities. Because I think there are plenty of men who do feel lack of confidence at times, but just don't express it or aren't allowed to express it in some ways. And so I think that combined with this kind of outsider status and men sort of speaking more confidently contributes to this confidence gap, even

though there's really no evidence that women are underperforming compared to men. So they're equally capable, they just might view the situation a little bit differently.

NICOLE TORRES: So of the women that you've studied, how do you find that they deal with these stressors?

TERESA CARDADOR: Well, so let me, so in my research, in addition to the stressors that the Olin women talked about, we have uncovered what we consider to be another subtle stressor. So maybe I can talk about that a little bit first and then I'll talk about how women address these issues. So in some of the research that I've been doing lately, we've found that the roles that women perform in engineering are, can often seem less valued within the profession as compared to the roles that men play. So everyone is familiar with the idea that engineering is a sex-segregated occupation, right? So there's this idea that it's more men than women. But in the research that myself and my colleagues have been doing recently, we've noticed some patterns of sex segregation within the occupation itself, in that women tend to be disproportionately likely to pursue roles that have to do with more of the professional skill requirements side of engineering, like managing, multitasking, communicating, et cetera. So it might be useful to take a step back here to help your listeners understand what that means. So in engineering, there are two kind of recognized sets of skills that people talk about. One is sort of the one that you think about generally, which is the "hard" in quotes, hard technical skills. And then on the other side is the sort of a "soft" or what are often referred to as professional skills or managerial skills. And the former are often more valued in engineering and associated with sort of what it means to be a real engineer, whereas the latter, the more

professional or soft skills if you will, which you know, as I said, involve things like managing, maybe communicating, multitasking, you know, being the one who manages the engineering team or is the engineering manager — those kinds of skills tend to be viewed by engineers as more peripheral and less associated with what it means to be a real engineer. And so what my research shows and research of others has shown is that women, as I said, are disproportionately likely to pursue roles in the sort of purely technical side and are more likely to be found in these more professional skill requirements. Now, to be clear, these professional skill requirement roles within engineering are very highly technical still, but they have a combination of these highly technical skills and more of the professional skill requirements. But because of the way that the more technical roles tend to be more valued in engineering and more associated with what it means to be a real engineer, the roles that women play, these more in quotes "peripheral roles," tend to leave them feeling like their roles are less valued, often less respected and those kinds of things create stress. But the other thing that I want to make clear is that my research doesn't show that as a result of women moving into these managerial roles, they're more likely to have access to top level management roles in organizations, in engineering organizations. Those are still dominated by men, unfortunately. So it's not, it's not giving them the fast track to high level managerial positions. It tends to be more of these kind of product management, project management, managerial engineering type positions. And there can be a real bump in terms of pay associated with moving into a managerial role. But what my research shows — and I have a study along with Patrick Hill that shows some of these outcomes as well — that women who move into these managerial roles versus the technical roles report things like lower perceptions that their work is

meaningful, lower identification with their engineering colleagues, right? Maybe some of the reasons I talked about. They report greater work-life balance challenges. And this could be because the managerial roles allow for a little bit less flexibility, and where they spend their time and how they spend it maybe require a little bit more facetime, that sort of thing. They record report greater intention to leave the profession. And they generally get judged more harshly on their technical ability. And so in an environment where women are already stereotyped as less technically competent, being disproportionately present in this role, sort of, we think that it reinforces gender stereotypes about their technical ability and their competence in the eyes of their male colleagues. So it has some of these, these sort of hidden negative aspects.

AMY BERNSTEIN: And you're not seeing those, that kind of negative piece of it with men who advance into managerial roles?

TERESA CARDADOR: Oh, that's a really good question. So we haven't really studied the experience of men in managerial roles specifically, but I can tell you what some of the interview data were telling us from the study. And the short answer is that men do not seem to be as penalized in terms of perceptions of their technical ability and technical competence. So in men it appears to be this kind of both/and perception, that they have the technical ability as well as these more broad professional skills. But for women, there seems to be more of a perception that one comes at the cost of the other, if that makes sense.

AMY GALLO: So women move into those roles because they don't have the technical chops.

TERESA CARDADOR: Exactly.

AMY GALLO: Whereas if men do it, it's because they have these great additional managerial skills they can add to the mix.

TERESA CARDADOR: Right.

AMY GALLO: Yeah. So you do study how women deal with a lot of these stressors, whether it's being pushed into managerial jobs, feeling less confident, you know, the overt bias or the microaggressions. What do you see women who are succeeding in these fields do differently?

TERESA CARDADOR: Well, so there's maybe a few things that I can mention. The first thing that I think is really important for women is to understand the nature of the sort of gender stereotypes and biases that they're confronting in this particular environment. So I think a lot of women who enter the profession, there's this sense that, you know, these kinds of stereotypes and bias are maybe things that their parents experienced or their mom experienced, but it's not something that affects them. And so I think many women are surprised and dismayed to see that the, you know, especially as they progress in the profession, that these things still go on, that they will experience overt forms of discrimination and more subtle forms of bias. Some of my work on the managerial role side, in terms of women going into managerial roles, one of the things that I often mention when I talk to women about this particular issue is really to, you know, try to evaluate your own personal preferences as you consider what roles you want to take within engineering. So some of the women that I've talked to in my research actually say, you know, yes, I am very interested in pursuing a managerial role because it fits with my perceptions. It fits with the way that I like to do work. It fits with my interests. And other

women that I talked to tell me that they, they definitely started out on a more technical track, but over time they were mentored by you know, very well meaning mentors and organizations into more managerial roles because they were identified as having skills that might be seen as relatively rare in those contexts. You know, very good communication skills, very good skills in terms of organizing other people that maybe their male colleagues were not seen as being as strong in those areas. And so they say that they sort of are mentored into these more managerial type roles and then they kind of get on a path where those managerial experiences become path dependent. And so you know, they actually report that the organization is kind of grooming them to take on those kinds of roles. So one thing when I talk to women about managerial versus technical, I often just encourage them to think about whether the paths that they're being mentored into are actually a good fit with their preferences, or are they sort of choosing these roles because someone in their organization is encouraging them in this direction, even if it maybe isn't something that naturally fits their interests. And one thing that can be really difficult if you're on the managerial path for quite a long period of time is it can be a little bit difficult to get back on the technical path because the skills in those areas are so specialized. So if you're on the managerial role for a longer period of time, it might be easy or not surprising if people lose a little bit of their technical specialization. And it's not to say that you can't get that back of course, but because of the role requirements, a lot of my engineers report to me that you don't have to have as much technical specialization to pursue the managerial roles.

AMY GALLO: It seems like the advice, given what you've just described for women who feel like they're being put in that path is to decide quickly whether they want that or not. And if they do, to even experiment, you know, set it up as an experiment. So that the transition back won't be so painful or so difficult if they decide that's what they want to do.

TERESA CARDADOR: Yeah. And there are definitely women in my samples who remained on
the technical track, and what some of them said consistent with what you're talking about Amy, is that they were very strategic in wanting to remain on — even if they had managerial aspirations later — they were very strategic in wanting to stay on the technical career path for a minimum number of years in order to sort of ensure that they had retained or develop the technical chops to just make sure that they would be maximally prepared to have that flexibility later on. So they didn't necessarily talk about it as a strategy to protect themselves from, you know, being stuck in a particular role later on. But they just felt like they needed to have a certain level of technical sophistication before they thought about moving into a managerial role.

AMY GALLO: I'd love to go back to the conversation with the students and what we heard from them. Because one of the tactics that both Jessica and the students talked about was playing nice in order to get things done. And I'm curious what you've, have you seen that in your research and how has that worked for women that you've looked at?

TERESA CARDADOR: Yeah, so this is a classic thing that I hear all the time. And so the upside as the students were talking about is this potential for connection, right? So they were talking about how they really enjoy interacting with people in the workplace and in the educational environment, in a, you know, relational way. But that the downside of having to do this sort of work is that it's a form of emotional labor. It's very effortful and it can be time consuming. We're doing, I'm doing some research with some colleagues right now that's in progress that shows how women — we refer to it as "performative niceness," which is how they are required to engage in a certain set of behaviors that are very time-consuming that literally add hours to their day, having to engage in these types of behaviors. And so it's effortful, it can be time consuming, and then over the long run one, another important implication is that it can undermine your authority if you're being seen as too nice. And so this double edge, or this fine line if you will, that a lot of women — and this is particularly women in male-dominated occupations because the gender stereotypes are so exaggerated in sex-typed occupations — they have to sort of thread the needle if you will, or walk this fine line where you have to play nice in order to avoid penalty and you know, get what you want, as the students were talking about. But it can sometimes undermine your authority. And so the mixture of the two is really needed. And I remember Jessica saying, I really could relate to what she said here about how a mixture of the two is needed, that more assertive behavior but also playing nice. And she talked about how this is really hard to calibrate, that it's something that women, you know, have to think about and deal with for much of their careers.

AMY GALLO: You said you related to this needing to thread the needle. And I'm curious what, what are your tactics?

TERESA CARDADOR: Oh yeah. [LAUGHTER] You know, it's hard. I mean, it's definitely something that I've experienced in my own career. I think that the — so let me try to say something optimistic or positive here. So I think some of the research that I'm doing right now and some of the work that's out there shows that it gets better with advancing tenure. So I think that's one thing. And I think with advanced tenure, many women feel that they have proved their competence and they have to engage in less of these sort of proving behaviors. And so I think it does get better with advancing tenure and we're definitely finding that in the research that I'm doing now. And then the other sort of factor is that I think it gets better, or it's less of a challenge for women when they have established relationships, which is correlated with tenure of course. But I think as a result of, you know, those two factors, you maybe have to engage in these sort of proving behaviors a little bit less. And then also in established relationships, you might get more of a pass for not being nice all the time, right? So if people know you, if they work with you all the time in the operating room versus, you know, you are one of many teams that rotate through with a team of surgeons in the operating room. If they know you and they've worked with you day in and day out, if you have a bad day, or you're super directive with someone, or you raise your voice even, you show those kinds of assertive behaviors that might be penalized in other contexts, people might be more willing to give you a pass because they're like, OK, she, you

know, we know Teresa, she's a real person and she's just having a bad day, right? So once you form relationships with people, it tends to possibly get a little bit easier.

AMY BERNSTEIN: So if you're thinking, if you're a woman, you're thinking about working at a male-dominated organization, in a male dominated field. How do you evaluate whether it'll be a good place for you to work?

TERESA CARDADOR: Yeah, that's a good question too. So because one of the solutions right is, or potential solutions is, try to select into an environment where these, the stereotyping and the bias and various forms of exclusion are less prevalent, right? And so if you're in an environment that is more supportive of women, then you're probably less likely to experience these kinds of things. Things like looking for women in leadership roles. One of the reasons why we see women in, or we think that we see women in managerial roles is because I think very well-meaning organizations think that one of the ways to address this under-representation issue is to try to get women into more managerial roles. So they, you know, that women coming into organizations have access to more mentors and role models and things like that. And that's not a bad thing. So looking to see whether women, there are other women in leadership roles, not just sort of mid-level leadership roles, but also are there women in leadership roles at the top of the organization. I think that's indicative of some things that might be important in terms of organizational culture. The presence of family friendly workplace policies. So, you know, things like flextime, parental leave, not just for women but for men too. Do men also get long periods of leave as a benefit? Those kinds of things will give you an indication of how family friendly the organization might be. I think Elena

talked about, you know, looking at how and asking about how people interact and socialize with each other. She was talking about how she sort of realized when she was in an organization that the women and men didn't tend to socialize together. So you can definitely ask these kinds of questions if you have a chance to talk to employees before you take a position. The questions about, you know, do there seem to be places or spaces in the organization that are reserved for just men or seem to be kind of men's spaces. So I think Jessica talked about the machine shop being kind of a place where she didn't necessarily feel welcome. And so either being, you know, looking for those kinds of things and being observant of those sorts of things when you visit the organization or specifically asking about them. And you know, I think it's important for organizations to understand if there are spaces where women don't feel welcome, why is that the case and what can be done about that. And then, just feeling these kinds of things out during your interview. So one of my informants for a study that I was doing gave me, told me a story about how she and her husband, who was also an engineer, were interviewing at the same company for a job. And she was the primary hire and he was also being considered. And so they went through, I think they had the dinner together with the recruiters, and then they were taking a tour through the organization. And she said that one of the things that was very frustrating to her is that the interviewers talked to her husband the whole time and didn't really talk to her very much and didn't ask her a lot of questions, even though she was the primary candidate who was being considered for the role. And so, things like that are sort of obvious red flags in terms of how you might likely be treated once you take a position in the organization. So there are a lot of kinds of things

like that. I think definitely trying to evaluate the organization and the job context as being female-friendly and then trying to select into those types of environments is really important.

NICOLE TORRES: Well, if you, you know, if you didn't see these cues and you are in an organization and you're starting to feel like you don't fit in and you're thinking about leaving or trying to make it work, what do you suggest that women do? Do they just quit or can they try to make it better for themselves?

TERESA CARDADOR: So I always, I get asked for career advice a lot and I'm really always super hesitant to give career advice to other people because there's so many factors that go into play in terms somebody making a decision about what's right for them. So I don't, you know I think if the situation — obviously if the situation is really not sustainable and they're really miserable and unhappy in a situation, then I would really encourage women to try to look for environments where they can feel that they're equally valued and that they're maximally supported and that those environments are friendly to women and also to men. So I think that if they really felt like the environment that they were in wasn't sustainable, I might encourage that or I might ask a series of questions to help them understand whether making a move was right for them.

NICOLE TORRES: So I guess maybe a better way to put that then is like, if they are thinking that they do ultimately want to quit — and we know attrition in fields like engineering for women is very high — like what are some things

that they can, that they should think about? What are the questions that you would ask them to consider before making that move?

TERESA CARDADOR: So maybe — I'm kind of skating around this, so I'll just say it directly. I think that a lot of the solutions that we try to think of in terms of, you know, how should women navigate the situation, what did, what should they do, really put the onus on women to change their behavior, change their environment, figure out how to talk to people differently, or how to change their attitude in some way. And none of those recommendations feel satisfying to me because I feel it's not that having the awareness and doing some behavioral change or even some attitudinal change isn't important. It can be helpful in terms of general coping. But for these kinds of issues to change really, truly, and for women to benefit, I think maximally, the onus really needs to be on organizations to change their cultures and change the reward systems that they have or change how they value and reward men over women in these kinds of environments. And so without —

NICOLE TORRES: Amen.

TERESA CARDADOR: So without changing, I think without focusing on those broader cultural and systemic issues, you know, I think that's where we're going to make the most change. And so that's why I'm dancing around the recommendation a little bit because I tend to think that the changes required are a little bit broader.

NICOLE TORRES: Totally agree.

AMY BERNSTEIN: Teresa, this has been great. Thanks again for joining us today.

TERESA CARDADOR: Thank you. It was my pleasure.

AMY GALLO: So Teresa hesitated to give advice about what to do when you're thinking about leaving and you know, she had those concerns about putting the onus on women, which I get.

AMY BERNSTEIN: Yeah, and I totally get that too. But I did, I do have a really strong view on one part of this, which is that if you find yourself in a situation where you think the doors are closing in the faces of people because of their gender or their skin color or some other part of them that should be irrelevant, then it is up to you to say something about it. You know, you're on your way out anyway. An exit interview is a great, great opportunity to say, you know, you may not realize this, but it is really hard to be a woman at this company, and it's four times harder to be a woman of color in this organization.

AMY GALLO: Right.

NICOLE TORRES: I think that's great advice.

AMY GALLO: Yeah. I mean I understand her hesitancy to say this is your responsibility to do because you do risk burning bridges that could help you later in your career. You know, it's hard to do. But I think, I mean, even educating — if you think of it more as educating people about the challenges people face in their organization, it can be really helpful.

AMY BERNSTEIN: Also, if you're waiting for, you know, the people in power to say, here, let me share power, you're going to wait an awfully long time.

AMY GALLO: Yeah. I mean it's, it's hard because I don't want people to feel the weight of the world to make all the changes.

AMY BERNSTEIN: Totally.

AMY GALLO: And yet we all need to succeed in this current environment.

NICOLE TORRES: Well, I, so I heard it as, I think I maybe asked the question in a certain way because I heard it as, you know, do you have any advice for women who are feeling like they don't fit in in this company? Like what should they do? Should they do anything or should they just quit?

AMY BERNSTEIN: Right.

NICOLE TORRES: And so I heard it as like, you know, it's hard to tell women if you're really feeling like you don't fit in, that you're not welcome there, that your ideas are discounted and you're being pushed on a track you don't want to be on, like giving advice to say like, you can change some things about your situation. You can change your behavior, you can change how you see your work, you can change your mindset. It can be tricky to give that advice because it's, I think it's not always effective. It's often not effective. And maybe the hesitancy was like to give that type of advice or to simply say flat out like, You should quit.

AMY GALLO: Yeah.

AMY BERNSTEIN: Right. And that's totally fair. I mean, I think that's really sensible, but if you're in the position, if you are so uncomfortable, so unhappy at work that you're really thinking about leaving, then what do you have to lose?

AMY GALLO: Yeah. Well, the question, I think the question for many people, and I imagine having not worked in engineering or a male-dominated field, but understanding that outsider status, there just must be so many times where you wonder, am I imagining this? Like is this as bad as it seems?

AMY BERNSTEIN: Yeah.

AMY GALLO: And I think the question for many people is at what point do I decide I can't do this?

AMY BERNSTEIN: Yeah.

AMY GALLO: And I wish I had better advice about that, those sort of questions you ask yourself.

AMY BERNSTEIN: Right.

AMY GALLO: Because you know, I think if anything, people who are listening who are in male-dominated fields, I think what I took away from Teresa, and certainly even from listening to the Olin students, is like, you're not crazy, right? Like you're not imagining things.

AMY GALLO: No.

AMY GALLO: The bias is exaggerated in these fields. And what you're experiencing is real and it has impact on you, and to be aware of that.

AMY BERNSTEIN: Yeah. But let's go back to the question you asked a minute ago about, you know, is there a halfway step before you leave? Right? You have to leave. Maybe if you're feeling so alone and like you're crazy, is there an opportunity to reach out to other women in the organization. That is, you know, that's one way to find out that you're not alone. Right?

AMY GALLO: Yup.

AMY BERNSTEIN: Those affinity groups can be super helpful.

AMY GALLO: You know, even sharing Teresa's research or research that we've published about what it's like to be in these fields, sharing those with other women you work with, with men who you feel will, you know, be a sympathetic ear, maybe even have some power to help make some changes. Again, if the intention is education, I want people to understand what my experience is like, people will be more receptive.

AMY BERNSTEIN: But I think we have to, we have to own that that takes work. It's, you know, it is emotional labor. That kind of constant vigilance is really wearing to call out every microaggression. It can take it out of you, and also, who wants to be that person all the time, right?

AMY GALLO: I got the sense that Elena and Ana were going to be so much better prepared. And yet part of me also wanted to protect them and pretend maybe like it'll be OK. Maybe they'll get in there and they'll be in these ideal

workplaces —

AMY BERNSTEIN: But what they have is a language. They'll know what's going on when it happens so that they can call out the microaggressions.

AMY GALLO: Well, they'll be able to name it, they'll be able to talk about it. Hopefully they'll be able to educate their colleagues about it, who aren't aware of it. And —

AMY BERNSTEIN: And they'll have the assurance that it's not OK. Right?

AMY GALLO: That's also — right.

NICOLE TORRES: And it's not about them.

AMY GALLO: Yeah.

AMY BERNSTEIN: Yeah. Totally.

NICOLE TORRES: That's our show. I'm Nicole Torres.

AMY GALLO: I'm Amy Gallo.

AMY BERNSTEIN: And I'm Amy Bernstein. Our editorial and production team is Amanda Kersey, Maureen Hoch, Adam Buchholz, Rob Eckhardt, Mary Dooe, Erica Truxler, and Cori Brosnahan.

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