



## Opinion Science Podcast

*Hosted by Andy Luttrell*

### Intersectional Role Models in STEM

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#### **Andy Luttrell:**

If you're listening to this podcast, I'm guessing I don't need to sell you on the importance of science. It's like, definitely important. I mean, just think about the technology we've all come to rely on. That's science. The COVID vaccine we so desperately need? Mmm..science. The new cooking appliance that I don't technically need but is still very cool? Science!

We've even come up with a fancy acronym for these disciplines because we value them so much. You've probably heard of "STEM" fields—S.T.E.M. It stands for "science, technology, engineering, and math." And as a society, we're relying on people in these fields to innovate and move us forward. But for a long time, those people have all looked pretty similar, and a big chunk of the population who could contribute to these important issues have been left out.

For example, data from the National Science Board shows that although women in STEM fields are on the rise, as of 2017, women accounted for just 29% of all science and engineering employment in the U.S. And while African Americans make up 12 percent of the U.S. adult population and Latinos 16 percent, they occupied just 5.5 and 7.5 percent, respectively, of science and engineering jobs in 2017.

The reasons for the underwhelming numbers of these groups in STEM are many. They range from blatant discrimination to more subtle stereotyping. But another dilemma is something of vicious cycle. Experts have suggested that if science already feels like a boy's club, then girls just don't think it's for them, and the boy's club continues. If it seems like there aren't many Black scientists, then young Black kids can't easily see themselves in those roles either, and the disparities persist. So what can we do create communities that are more welcoming and inclusive? That provide a feeling of belonging that extends across all budding scientists?

You're listening to Opinion Science, the show about the science of our opinions, where they come from, and how they change. I'm Andy Luttrell. And we're making podcast history this week! Well, it's not a big deal in the history of all podcasts...but it is for this podcast. Two guests! At the same time! I'm excited to talk to two friends who are doing very cool work together. Eva Pietri is an assistant professor of psychology at IUPUI, and India Johnson is an assistant professor of psychology at Butler University. The three of us were in grad school at the same time, and after

Eva and India graduated, they were able to keep the flame alive by collaborating on a bunch of really interesting and important studies.

Together, they've been looking at addressing issues with representation in STEM fields. In particular, how important are role models when it comes to signaling an inclusive environment in these fields? And how might that be uniquely valuable for people with intersectional identities? That is, people who have multiple aspects of who they are that have been marginalized? Particularly in this context, that's women of color.

By the way, just a heads up—at one point Eva and India talk about a study they did looking at Kamala Harris as a role model. We recorded this conversation before the 2020 election, so if it seems weird that we're talking about Kamala without mentioning the fact that she was elected Vice President, that's why.

Okeedoke, I'm ready to jump into the interview, so here we go...

**Andy Luttrell:**

Could you talk about where the collaboration between you came from? Obviously, I knew you both in grad school, and I don't remember you both working on this stuff at that point. So, this all was after you'd left, after you were around each other constantly. At that point you said, "Wait, maybe we should work together."

**Eva Pietri:**

Yeah. We didn't collaborate in grad school.

**India Johnson:**

Yeah. Eva, you can jump in if you have more details, but I feel like this idea came about because we were at SPSP and we were talking about how the research on role models and identity safety, none of them have really considered an intersectional perspective. You know, it was just assumed that interventions that were effective for white women would be effective for Black women or Latino women, and I have a memory of us being in our hotel room, because... and I think Ingrid might have been there, because-

**Eva Pietri:**

And Tabitha. Yeah.

**India Johnson:**

... and Tabitha, because even though we are all out of graduate school, we all still stay together when we're at SPSP, because hotels are expensive, and we just kind of talked about it, and then we went and did it. I think we piloted some data that spring semester, like when we got back from SPSP, and the collaboration was born. You know?

**Eva Pietri:**

So, I was still in my postdoc, so it worked out well that you all stayed with me. I still had no money. But I had... Obviously, in graduate school I did a lot of basic attitudes research, and then during my postdoc I started to look at more intervention work, bias reduction work, still relevant to

attitudes, obviously, and India had done more stereotyping and prejudice work in grad school, as well. And so, we're like, 'Well, we like each other, and look, we're doing similar work now. We should collaborate.' So, we're like, "What should we collaborate on?" So, I think we wanted to collaborate together, but yeah, then we had this research idea.

And then I remember we pilot tested the stimuli, but we needed money to actually collect the data, and it worked out really well because I started my new job at IUPUI, and so then I had startup money, and so we actually had the funds to be able to do some of this work. And I feel like we ran two studies my first semester there and wrote them up in spring semester. I'm never this quick about stuff. And then we submitted it over the summer, so we were really quick about it, that first paper.

**Andy Luttrell:**

Yeah, it's interesting, so in terms of the connection to the kinds of topics that are on this show, in terms of opinions and persuasion and stuff, I think it's interesting that both of you independently started in labs that were very kind of basic attitudes and opinion stuff, and then both of you independently followed paths that brought you to similar sorts of other topics, and then sort of re-joined up at that point. So, in terms of how much of that early attitude stuff informed kind of the way you were thinking about bias and stereotyping and that stuff as you started to kind of branch out on your own and do things independently?

**Eva Pietri:**

Yeah. I mean, there's a lot of... I guess there's a lot of ways I could personally answer that, because I feel like I really switched directions a lot when I went to my postdoc, but part of the reason why I even think I got hired for that postdoc, because I was like I didn't come in with any women in STEM experience, so it's... Yeah, it's funny to think that I convinced them that I would be a good fit, but I'm happy they thought so. But they... You know, I mean changing biases or changing attitudes, and they actually were kind of interested in the elaboration likelihood model as a potential framework for these video interventions that they ended up creating, and so I got to tell them I took attitudes with Dr. Rich Petty, and so right away I just think basic attitudes work is really relevant to a lot of real world issues, and so I was able to convince them of that.

So, that's like that first step. I don't know, but with the specific research, I don't know, India, if you want to add more to that.

**India Johnson:**

I mean, I think everything you say, I agree with, and I think also the nice thing is that we are well trained, and so in trying to design studies where we rolled out alternative explanations and thinking about kind of the theoretical framework, I definitely know some of the work that is under review that's not published, where we're looking at allyship and trying to identify how we can kind of get Black women to perceive white women as persons who have their best interest in heart. I mean, we pulled from persuasion literatures, thinking about, "Well, if we can have someone endorse that person who's part of that in group, that might then... may be a more convincing and persuasive cue."

So, I think that I like our research for a lot of different reasons, but I feel like underneath it, you still see the parts of us that are very much a reflection of we came from Ohio State, we worked with basic attitudes researchers.

**Andy Luttrell:**

So, even just to sort of start from the beginning of the kind of work that you're doing, so for folks who aren't sure what this talk of allyship and all that stuff is about, so the work that you've been doing a lot is looking at in STEM fields, issues related to belongingness, diversity, and inclusion, right? Is that... That's a broad umbrella, but does that seem to capture it?

**India Johnson:**

Yeah. Yeah.

**Andy Luttrell:**

So, what... Could you sort of outline, even before we look at the kind of interventionary stuff that you're doing, like what are the issues at the center of it? What are the problems that needed to be solved and what was sort of producing those problems?

**Eva Pietri:**

So, I think the general question that we sought to answer up first, we know that role models, having people that look like you, representation can be really helpful. Particularly, a lot of that's been looked at in STEM fields. We also know that in a lot of STEM fields there's a stark gender disparity, so a lot of that work has looked at how role models and representation matter for women broadly, but if you look at women broadly, you might accidentally treat women as a monolithic group, so you might not sort of appreciate the variability among different types of women, or the fact that women can have multiple marginalized identities.

And so, the question we sought to answer was we first looked at this with Black women and then Latino women, would it be more beneficial to have representation or have a role model who matches their ethnicity, or their gender, or both? And sort of really broadly, can a white woman act as a role model for Black and Latina women? Because we just didn't feel like that had really been studied yet and it would suggest, okay, it's not a one size fits all with regard to these role model interventions, like not all women role models are gonna be beneficial for all women. We really need to acknowledge and understand these important differences.

Because even though women are underrepresented in STEM, Black and Latino women are really, really underrepresented in STEM, like making up, what, 2% respectively? But being... What are they? 6% of the population? So, we just see there's just not representation when you get looking at minoritized identities with regard to both gender and race.

**Andy Luttrell:**

So, role models, the idea was to think that those might help contribute to expanding that representation of like people who are interested in pursuing it, sort of... In terms of what the problem is, is it that people aren't opting into these fields? Or people are dropping out of them? I'm just curious kind of what that looks like.

**India Johnson:**

I would say a little bit of both, right? So, in terms of thinking about representation, like having access to those role models and being exposed to those role models can spark interest, it can spark attraction, so you're more likely to be attracted to those fields and feel like you want to engage, but then you even think if you are someone who does have those interests and you are engaged in those areas, if you are in the environment where you don't see people who you feel like you can relate to, the experience can be very isolating. And then that then may... When you don't feel that sense of belonging, you're less likely to persist. You're less likely to graduate. You're less likely to go on to enter the STEM field.

And so, kind of making sure that you have role models that can kind of spark that attraction, bring people to the field, but also kind of making sure that even once they are identified with the field, having access to persons who can kind of encourage us into belonging, so they'll persist, and go on, and kind of stay in STEM.

**Andy Luttrell:**

So, could you sort of unpack maybe one of the early studies that you did that sort of gave us a taste of what makes for a role model that actually fosters this sense of belonging that might help retain students in STEM fields who otherwise might feel marginalized?

**Eva Pietri:**

Yeah. So, the first paper we did, so it wasn't actually with students, because they're more expensive to recruit, but we did get some grant funding to do that. So, we started it with participants from the general population, so using like Amazon's Mechanical Turk participants, and we recruited Black women, and we showed them a fictional STEM company. So, we said like, "Okay, imagine you were an employee at this company. We just want to get your impressions of it." And then they were assigned to either learn about no employee at the company, or they learned about a Black woman, a Black man, or a white woman who worked at the company. So, they randomly saw one of those three employees or no employees.

And basically, what we found was that participants anticipated more belonging at the company and they thought they would feel more comfortable, they would get along more with their colleagues, when they learned about a Black woman or a Black man at the company. But the white woman didn't differ from just not learning about anybody, so she didn't hurt, but she didn't help. And an important mechanism was feeling similar to the employee, so participants felt more similar to the Black man or Black woman than they did to the white woman, so they found that that was an important... Just sort of it helped explain our effect.

**Andy Luttrell:**

And so, the intersectional part, right? The idea is like if you weren't to account for this intersectional identity thing, you'd have gone, "Oh. Well, a white woman as a woman should be a perfectly good role model for women who want to pursue these kinds of careers." But what you're finding is once we start to tweak who that woman role model is, it changes the game for people.

**Eva Pietri:**

Yeah. So, and it's... Yeah, she might be a perfectly great role model for other white women, or other... You know, I don't want to say... I don't want to speak for all women of all identities. We probably have a lot more research to do. But she might be really good for certain women, but we were finding at least in this study, she was not effective for Black women. So, I don't know, India, if you want to talk about... Because we obviously, we needed to replicate this with students.

**India Johnson:**

Yeah. And so, the paper that Eva just was talking about, we had two studies in that, and we did actually replicate that first effect that we found again with Black women for the general population, and then once we got some grant money, we were able to recruit Black women students. And so, a second paper where we kind of published some of this work. In our first study, we recruited Black woman students, but these were Black woman students who were not in STEM, and the setup was very similar to what we did in this earlier research. So, we exposed them to a fictitious school of science and engineering, imagine that you're a student at this school, and then they see a professor and we manipulated the race and the gender of the professor.

So, it was either a white man, a white woman, a Black man, or a Black woman, so very similar. It's just we swapped out kind of that no employee condition of our earlier work for that white man, and then we just asked them to tell us how much they think that they would feel a sense of belonging after they see one of these randomly assigned profiles. And we replicated what we found with our Black women from the general population. So, they're reporting a higher anticipated sense of belonging when they see either a Black man or a Black woman professor, but again, we're finding that that white woman professor is doing very little, and the white woman professor actually did not differ from our white man professor. And so, here we have a few studies under our belt that are kind of highlighting that that shared racial identity is really important, and we also again found evidence of perceived similarity as that important mechanism.

So, they feel more similar to those with those shared racial identities, and then that is what is then leading to that greater sense of belonging.

**Andy Luttrell:**

Are these ones that had the stigma consciousness variable as part of them? Yeah, so could you explain what stigma consciousness is and why that would be relevant? I think you found it sort of was only for folks who were especially high in stigma consciousness that you find these kinds of effects, so what is this and what did you find?

**India Johnson:**

I'm gonna let you go for it, Eva.

**Andy Luttrell:**

I guess I could start directing them at either of you, but I don't know which one of you is better...

**India Johnson:**

Yeah, I know.

**Eva Pietri:**

That's okay. We'll just let it go back and forth. So, with stigma consciousness, so stigma consciousness, individuals who are... This is a concept that's been studied for a really long time. But individuals who are high in stigma consciousness are aware that different aspects of their identity are devalued, and so in the first study that I talked about a little bit ago, we measured stigma consciousness with regard to gender, race, and gender and race, so to what extent are you worried that people will judge you negatively because of your gender, or because of your race, or because of your gender and race. And what we found was that... Yeah, so we see the effects are stronger for people who are... and it was weird. You would have thought that maybe we would have seen if you're high in gender stigma consciousness the white woman would be better, but we didn't find that. We just found a really similar pattern of results across all measures of stigma consciousness. And it might be because we measured them at the same time, but basically what we found is that on any level of stigma consciousness, the effects are higher between the white woman and then the Black man or Black woman, but also stigma consciousness, if you think you're gonna be devalued based on one of your identities, that doesn't feel good.

And so, we found that it led to lower anticipated belonging. So, basically if I think I'm devalued along an identity dimension, then I'm worried that I'm not gonna fit in or be valued in this STEM company where I know my race and gender are negatively stereotyped or not valued.

**Andy Luttrell:**

And that's before you get any information about a role model. You're just saying sort of, "I just expect to be devalued in this place."

**Eva Pietri:**

Yeah. And we see that because we see that in the no profile condition. So, like there's just this negative relationship. And we see the negative relationship in the white woman condition and we also saw it in the Black man condition, so even when they had a Black male role model, they still... higher levels of stigma consciousness still related to lower anticipated belonging. However, and this is when having both identities matching seems to be important, when they had a Black woman role model, that negative relationship with stigma consciousness went away.

**Andy Luttrell:**

Meaning... It sounds like it means for people who normally have this feeling of stigma consciousness, having this role model, having this person in this company who matches sort of both of these dimensions addresses that concern.

**Eva Pietri:**

Yeah.

**Andy Luttrell:**

Is that kind of-

**Eva Pietri:**

Yeah. It mitigates those concerns so then they're like, "Okay, well, maybe I actually will belong in this company."

**Andy Luttrell:**

And is it that folks who have lower levels of stigma consciousness, right, people who go, “Oh, I guess...” I don’t know how low the lows get in your sample, but people who are going, “Oh, I have no concept that anything about me would be a problem for this place that I’m going.” Is it that those people that just don’t care who the people working there are, they just generally feel like, “Yeah, I can do this.”

**India Johnson:**

So, you said in terms of persons who are lower in stigma consciousness. Is it just that they’re not paying as much attention to kind of what’s in the environment? Sure. I think that’s one way of thinking about it and I think as Eva said, we’re not the only people that study stigma consciousness. Obviously, it’s very relevant to work that relates to like belonging and role models. And in general, people who are higher in stigma consciousness just seem to be very vigilant. They’re paying attention to cues in the environment that signal safety and they’re paying attention to cues in the environment that signal threat, right?

And so, kind of in the absence of a clear cue that their identity is safe there, they’re gonna be more likely to report that lower sense of belonging.

**Andy Luttrell:**

So, some of the work that you do also looks at allyship in these processes, so maybe we can pivot a little bit to that, to sort of be like the jumping off point of kind of refining this idea of role models. To say that, “Well, intersectional role models actually are important beyond the kinds of things we would talk about before.” But if we go a step beyond and go like, “Is there a way that we can foster a climate that people would feel belonging in?” Even if they might ordinarily not. If that climate at the moment tends not to have role models who are sort of tailor made to the kinds of people you’d want to recruit.

**India Johnson:**

Sure. So, interestingly, we both... The paper that Eva talked about, as well as the paper I was just talking about, we looked at allyship in both of those and kind of part of the reason why we were interested in allyship is because we realized that the white woman role model wasn’t helping. And I think interestingly, we thought about our own experiences. So, thinking about who our role models were, who were the people who helped us get to where we were? And you know, we didn’t really have access to people who shared our racial identity, and so we kind of... I think at the time when we were first interested in this question, there wasn’t a ton of research on allyship in social psych. I’d say there’s not really a ton of research now. I think it’s becoming more relevant and people are trying to better understand it.

And so, kind of going back to the paper Eva was talking about, in that second study what we did is we included a condition where we had a white woman who was an ally. And so, how we kind of framed her as an ally is we said she was someone who acknowledges the challenges that Black and Latino women face in STEM, recognizes that they are underrepresented, but wants their voices to be heard, and so she works to actively recruit them into her lab. And so, what we found in that work is that when we exposed our Black women to an ally, that it helped, right? So, it seemed overall that when you feel as though there is a white person, a white woman specifically, in the



study who... or in this actual company who is an ally, that we then found that they reported higher belonging.

And so, we were really excited. We were like, “Okay, allyship seems to help.” But then of course we wanted to look at stigma consciousness as a moderator. And so, I feel like I did a nice way of setting Eva up, so I’ll let her talk about what we found with stigma consciousness.

**Eva Pietri:**

Yeah, so in the first study, basically the allyship was really effective for people who were low in stigma consciousness, but not for women who were high in stigma consciousness. So, if they were high in stigma consciousness, they actually didn’t really trust that she was an ally, which was interesting. Because we actually asked them, “To what extent do you think this woman cares about helping Black women?” And they just didn’t believe her. Which makes sense. I mean, if you’re aware of the pervasive racism that exists in society and this woman that you’ve never interacted with is just saying, “You know, I’m an ally. You can trust me.” There’s not really... The stranger. There’s not really good reasons necessarily to just believe her.

So, yeah, we found that stigma consciousness for that study was a really important moderator.

**Andy Luttrell:**

Have you found a condition where allyship offers these benefits for people who are high in stigma consciousness?

**India Johnson:**

Yes and no. Look, yes. I would say yes. So, kind of going back to the PWQ paper, I talked about the first study, but in the second study we actually recruited Black women students who were in STEM, and this was a correlational study, and we compared Black women STEM majors who were at a women’s-only HBC, and that’s a women’s-only historically Black college, to majors who were at a PWI, so a predominantly white institution. And one of the things that we found is that in general, this was an environment where our Black women STEM majors, even those high in stigma consciousness, and we actually found that... As a side bar, we found that our...

Let me make sure I’m saying this correctly. We found that our Black women STEM majors at our HBCs, that overall, they were just higher in stigma consciousness than our Black women STEM majors at the PWI. But interestingly, stigma consciousness positively correlated with belonging. And so, I always like to highlight that result because I think that when I talk about stigma consciousness, people think that it’s like this very harmful, bad thing, that when people are higher in stigma consciousness we need to do something about it. It’s like, “How do we get rid of this stigma consciousness?”

And what this finding kind of highlights that is in the right environment, it actually can result in these kind of positive outcomes. And of course, it’s correlational, so we don’t know if Black women who are higher stigma consciousness might seek those kind of environments out, or maybe you’re more aware of it now that you’re in that environment, but needless to say kind of going back to the HBC environment, overall our Black women STEM majors at the HBCs were more likely to believe that their role models that didn’t share racial identity, that they were allies. And

then that allyship was positively correlated with belonging. And so, that kind of tells us that in the right conditions, you will perceive individuals who don't share racial identity as a ally, and then that'll have positive implications for belonging.

And kind of what we've done since then is try to experimentally identify how we can expose Black women who are high in stigma consciousness to the right set of conditions that will convince them that that white person is indeed an ally. And what we found is that it's really important for someone who's part of their in group to signal that they can trust that person. So, I always give the example of Beyoncé, because of course, I'm also wearing Beyoncé on my shirt, right? Of course, I give the example of Beyoncé endorsing Hillary Clinton before the election in 2016. So, here you have a person who's part of your in group, someone that you presumably can trust, who's then saying, "Yeah, I've had positive experiences with this person. They do actually look out for our group." And under those conditions, Black women, even those who are high in stigma consciousness, will actually trust that the white woman is a ally, and then that leads to greater belonging.

**Eva Pietri:**

We sort of think of it as like if you get down to really basically what we're doing, it's basically a persuasion issue, so I'm trying to persuade you that you can trust this person, or that I can be trusted. We've also looked at this beyond just like a specific person, but an organization more broadly. So, if you're trying to convince somebody, "Hey, this organization will... We treat our employees well. People are allies in this organization." Again, it's a persuasion thing, so how do we persuade you that you can trust this person or that you can trust this organization? And so, what we've really done is it's really just in-group persuasion effects in that we're saying, "Okay, so if you have a Black woman say you can really trust this person and/or hey, you can trust this organization, I actually found that I have these wonderful mentors who had different identities that didn't match my own." That can lead to positive effects such as anticipated belonging in the organization or believing that that person actually is an ally.

**Andy Luttrell:**

Yeah, it seems like conveying that you're an authentic ally, right? That this is not just a show. I've been working on some stuff with... like I do work in moral, you know, moral rhetoric and stuff, and I've often wondered the same sort of thing about like if I convey my commitment to diversity inclusion initiatives as being like a morally motivated thing, and I think there's actually work on this, that people go like, "Oh, that seems actually maybe legitimate. You actually are gonna do that because you think it's the right thing to do." Versus I go, "We're gonna look way better if we can diversify our board." Then you go, "Well, I don't... I know you're saying it, but it doesn't really give me that kind of positive inclusion vibe that I'm looking for."

**India Johnson:**

Yeah.

**Eva Pietri:**

Yeah.

**Andy Luttrell:**

So, how much of this I guess depends... one of the things I was thinking about when I was looking at the kinds of role models in these studies is there are often, I think, people who are in an institution that you yourself are considering being part of, right? Whereas oftentimes when people talk about representation, sometimes we mean it in the more broad sense of just like, "Oh, can I look and survey this field? And do I see people who are similar to me or not?" And maybe I end up in an institution that doesn't have a particular role model, but is there something to sort of like a broad, abstract representation? Or is it really more important that it's like, "Well, where I'm gonna be, I need there to be someone for me."

**Eva Pietri:**

That's a good question. So, yeah, a lot of it we've looked at it with the person specifically in the institution, but I do think when we are especially getting down to questions of what can somebody do, say an instructor do, if they don't have the overlapping or matching identity, and I do think there are things that instructors can do to broadly show, "Hey, there is representation in this field." And we have found that they're effective.

So, we had a paper come out over the summer that showed that if you show a short, six-minute video of a Black female computer scientist to Black female students, it increases their interest in computer science. And so, that's an example of how having that representation broadly in a field can potentially spark attraction to that field. We have another paper where we showed for Latina high school students that if they have... It was a hour and a half long panel with Latina scientists across a variety of different STEM domains, that that short panel can increase the Latina students' interest and sense of belonging in STEM.

So, I think we see it both like is there somebody at this institution and will I feel like I belong there, as well as more broadly, okay, I'm interacting with somebody who I don't... They're not at my high school, they're not at my college, but they are broadly making me also feel like I can belong in this field.

**India Johnson:**

Yeah, so I think of even in terms of how we teach, since we all teach, making sure that we include pictures, right? So, making sure that students are seeing these diverse role models in terms of just exposing them to persons who they might feel more or less similar to because they have that shared or matching identity as a way of kind of thinking about how can we encourage people or attract people to a particular field.

**Andy Luttrell:**

Yeah. I wonder if some of it goes back to the idea from before about is the issue about people not opting into these fields, or is it an issue of people dropping out of these fields? And it could be sort of that kind of broad level representation helps encourage people to pursue those opportunities, but to stick a round if you're not getting that same kind of support while you're in a place, maybe that causes some problems.

**Eva Pietri:**

Yeah. That's a good point. So, I imagine that having the more... Seeing the person in the lecture side would help spark attraction, but then with regard to retention, you might need that support in

the day to day. And maybe you can get that through allies who really over time they'll... I mean, I think to really, truly be an ally, and to really, truly be trusted, it probably takes a lot of interactions, a lot of proof that you are one. So, having that support day in and day out and then also having instructors who maybe look like you.

I saw a question posed on Twitter once about like when was the first time you had an instructor, or like did you ever have an instructor that matched your identities, and it was really weird to reflect and think, "Oh, wait. No, I haven't." I never did. I've been in school... I was in school forever and I never actually had a Latina instructor. So-

**India Johnson:**

I didn't until I got to graduate school and I was telling my husband this my other day, like I minored in quant, because we all did, but I also minored in African American studies, and the first time that I had a Black woman professor was when I took an African American studies class at Ohio State. And you know, so it's like I was very far along in kind of my education, but yeah, I think that the point about what happens once you're in that environment is really important in particular, because we know that when you kind of look at the experiences of women in STEM, and this is across all identities, it's not the most supportive environment, right?

And so, it's probably even more important to have people that you feel like who can understand your experience or at least try to remove some of those obstacles. So, having those allies and having those role models is probably even more critical there.

**Eva Pietri:**

And it probably doesn't always have to be an instructor, too. So, it can be like an older peer. That could also be helpful, having those sort of communities.

**Andy Luttrell:**

Yeah. I think being exposed to these kinds of ideas is also useful from a vantage point like my own, because I sort of have to reckon with this thing of like, "Oh yeah, the spaces that I'm in so often were really built for white guys who have looked like me for the last however many years." And to be like, "Oh, yeah, so like growing up, all I had were role models, and teachers, and peers who I felt that kind of similarity with." And so, I think it's important not only to sort of realize like, "Oh, yes. We should sort of build and diversify for the sake of doing just what seems appropriate." But also, as this thing of like, "Well, these spaces might feel comfortable for people, but that doesn't mean that they're working. That doesn't mean that that's the way that they need to continue to be."

Are there sort of practical implications that you've sort of taken from this work in terms of talking to colleagues at your universities or people in other institutions who are interested in what this has to say about who they're hiring and enrolling?

**India Johnson:**

I mean, yeah. I think that like one thing that I just try to reiterate again and again is that if you want to have a conversation about attracting Black/Latina students, or students of diverse identities, you have to have faculty there. Recognizing that students are... They're gonna graduate in four years

and if you want to continue to keep that stream of students coming in, and you want those students to continue to be successful, it's important to try to make sure that you also are doing what you can to diversify the pool of people that you're hiring, right?

I 100% appreciate all the persons who are geared towards like, "How can I be a better ally? Can you talk more about that piece? What does that look like?" And I'm like I could talk about that all day until I'm blue in the face, but I think one of the things that our studies highlight is that it's a lot harder to try to convince and convey allyship, that persons who aren't of that shared identity might not automatically trust that that's the case, and that you want to be there and you want to support them. And so, I think the obvious practical implication is put your money where your mouth is and make sure that you're doing what you can to hire people of the students that you want to see represented at that school.

**Andy Luttrell:**

So, where is this work going? What's on the horizon? You loosely alluded to unpublished research that's in progress, so what are the kind of next steps? Now that we've sort of established that these role models matter, that this perspective is important, what's on the horizon?

**Eva Pietri:**

So, one component that we haven't talked about is if we get even more into the mechanism, like why do Black and Latina women feel more similar to role models matching their ethnicity rather than their gender. We've identified that it's because again it's that higher sensitivity to discrimination due to their ethnicity/race relative to gender. Because again, we know... Especially, I mean this summer made it so clear, at least in the U.S. there's definitely an issue of systematic racism. So, it's not surprising then that Black and Latina women would be more sensitive to racism and sexism.

And so, we find that they identify more with those role models because they believe that they've had these shared experiences with discrimination. So, they believe they've had to go through similar challenges and similar struggles. And so, now that we've identified that, we're sort of interested in continuing to understand that a little bit better. So, we actually, we got a grant from the National Science Foundation to continue to test this question. So, some of the questions we're gonna ask are is there something unique about identity-based adversity or discrimination? So, knowing that this person has spent their whole life dealing with the same sort of discrimination that I've dealt with, does that foster more of a connection and identification compared to just knowing that this one person struggled in a class?

So, like I struggled in my intro to programming... I'm like, I don't know. Intro to calculus, whatever. I struggled in this class. They struggled in that class, so we've had this shared struggle, but it's one instance. Does that foster identification but do so to a lesser extent of having a lifetime of having to overcome this adversity? And then also, we know that in certain STEM fields, there's a really stark gender disparity, and so we are also curious in say a computer science, or a physics, or engineering field, where sexism has been documented, we know that there's just... women are very highly underrepresented. In that situation, might Black and Latina women be more likely to identify with a white woman? So, might that make sexism salient and might in that situation a white woman role model be equally as effective as a Black or Latinx role model?

**Andy Luttrell:**

A lot of the work, I mean, all the work that you're doing is STEM-related. Is there a specific reason for that or would you think that this would extend beyond that?

**India Johnson:**

I don't know. We get that question all the time, like why STEM? I think because from a practical standpoint, it's clearly an area where you see that Black and Latina women are underrepresented, but they're underrepresented in a lot of areas, so even if you just think about upper management and leadership roles, as well, or as you move up the ranks in any organization, you're gonna see fewer women of color being kind of in those positions. So, we definitely think that it's applicable outside of STEM. The study that Eva mentioned where we kind of were looking at changing perceptions of an organization with this kind of in group persuasion, we actually looked at that in a context outside of STEM, right?

So, we have a few of those studies, as well. But yeah, we definitely think that this applies beyond STEM, as well.

**Eva Pietri:**

We actually have a new study that we're both really excited about that's... Well, I don't know if we're... Are we allowed to talk about under review stuff?

**Andy Luttrell:**

Are you asking me? I don't care what you do, you can talk about whatever you want.

**Eva Pietri:**

Actually... I guess I should ask India. Are you comfortable with me talking about under review stuff?

**India Johnson:**

I'm like, is this the Kamala stuff? Oh, God. Yes. I'm so excited about-

**Andy Luttrell:**

Oh, cool.

**Eva Pietri:**

So, basically we think this would also relate to politics and increasing Black women's sense of visibility and belongingness in politics generally, and so we have a study where we looked at white men, Black men, white women, and Black women's reactions to Senator Kamala Harris dropping out of the Democratic primary. So, we ran the study like two week safter she dropped out, and we found that in comparison to all the other groups, it led to Black women feeling significantly lower belonging and lower visibility in politics after she dropped out. Kind of regardless of whether they completely supported her politically, it was still just having that shared identity and knowing that she had overcome similar adversity was really important.

Another interesting thing, though, is that white women and Black men also were adversely harmed, just to a lesser extent. And then we've also looked at it experimentally, so we obviously wanted to run a true experiment after that. So, that's some work that's under review right now.

**Andy Luttrell:**

Did you look again when now she's back on the scene?

**Eva Pietri:**

No. We should have. We'll see when she gets elected. Maybe we'll still be able to run it.

**Andy Luttrell:**

Yeah. Let's cross our fingers that in a couple months you'll be able to run a study like that.

**Eva Pietri:**

Yeah.

**Andy Luttrell:**

I was wondering too, in terms of other identities, one of the things that comes to mind is I know at Ball State I see all sorts of stickers outside of faculty's doors that say, "I'm a first gen college student." And that being another potential instance of this, of being like... You know, it's less visible in the kinds of ways that a lot of the kind of identities we're talking about are, but they presumably... I was thinking of this when you were talking about is it enough just to have like, "Oh, there's a shared adversity." Right? And maybe first gen college student maybe doesn't feel like an identity as much, like a self-definer, but it still kind of has all those qualities of like fostering belonging and feeling like people have these ideas about me that I can't succeed in this outlet.

**India Johnson:**

Yeah. Well, I would just say we're definitely very interested in thinking about identities that might be less visible, like we've talked about first gen, as well. But in terms of being aware that a person has experienced adversity in some kind of sense, kind of what I immediately thought of is we have a paper that was looking at when you teach women, white women... Make sure-

**Eva Pietri:**

Majority white. Yeah.

**India Johnson:**

Yeah. Majority white women about how gender bias harms fathers who are scientists, that... This then allows them to kind of identify with that male scientist. So, recognizing that there's a shared sense of adversity. And so, this kind of just points back to kind of some of these questions that we're really interested in, in how are the ways that shared sense of adversity can kind of foster a sense of identification. That's one way we've kind of looked at the question. I have some other thoughts, but I want to allow Eva to kind of follow up first.

**Eva Pietri:**

Yeah. Well, I think one interesting thing with that father paper was that we... So, it actually, they didn't think that he had necessarily experienced... because gender stereotypes just impact men and

women so differently, and so even though they can be constraining for men, it's just constraining in a different way. And so, they didn't necessarily see him as having had similar experiences, but they felt a lot of empathy for him, and then that fostered identification. That was another route that can sort of lead to that connection, which has been very well established in the intergroup relations work. We just were kind of looking at it with regard to can this help make somebody a better role model and guide in the field, or mentor.

**Andy Luttrell:**

India, you said you had other thoughts. I wanted to let you express them if you had them.

**India Johnson:**

No, I think Eva hit the nail on the head, so kind of thinking about the fact that it doesn't always have to be the exact same kind of shared adversity, but I definitely think that that's a question I've been interested in and my students are interested in, so to what extent does someone else's experience with shared adversity, or with adversity in general, kind of then make you feel as though you can identify with a person. So, I don't want to start tiptoeing into other people's research, but my lab has been reading a lot of work on stigma solidarity by... I call her Mo. I her name is Maureen Craig, though. And Jen Richeson, and that group, and kind of thinking about the ways in which it can kind of inform our own research, because I have students who have questions like to what extent could a gay woman be an effective role model for a Black woman, right?

So, they have a shared identity, but at the same time, they might be... There might be other identities that are salient. And so, I think that it's an area that is ripe for kind of trying to look at the ways in which adversity impacts people and how that might then foster a connection. When it does versus when it doesn't.

**Eva Pietri:**

We started to look at some of these questions with like Latina women as role models for Black women, and we find that it's kind of complicated in that because there's so much variability in how Latina women present, so Latina women can look phenotypically white, or be an Afro-Latina, and we find that a phenotypically white Latina woman doesn't work as well. I want to say it's like still more helpful than a white woman, slightly more, but that an Afro-Latina is a beneficial role model for a Black woman. And we also started to look at issues like will a biracial woman act as a role model. So, I'm waiting. I'm slowly trying to get to the point where we ask the question will a biracial Puerto Rican white woman act a role model for every... I'm just kidding. That's my identity.

**Andy Luttrell:**

All right. Well, I'll be on the edge of my seat waiting for all the results to come out. We've only scratched the surface of this kind of stuff, so thanks for being here.

**India Johnson:**

Thank you. We appreciate the opportunity.

**Eva Pietri:**

Thank you.