Conversation #5 Transcript

>> Rory: Hello, everyone. Welcome to the final event in the National Academies of Sciences and Medicine conversation series, accessibility and inclusion in STEM. I'm Dr. Rory Cooper, and I am the chair of our planning committee, and it's been a pleasure working with everyone, and I look forward to our follow-up work.

This is the latest conversation, probably the last conversation, of our five separate conversation series, which have all been prerecorded and are available on the National Academies of Sciences and Medicine website, so please take a look at them if you haven't had a chance to see them in advance.

We hope you will be able to see today's prerecorded keynote lectures by the speakers who are attending today and will be able to have a follow-up conversation live with our panelists.

Our goal in this event is to offer the opportunity for active discussion among the speakers, panelists and those listening in via Slido.

For those of you via Slido, you can ask questions in the Q&A section of the website, and we will consolidate your questions and try to bring them into the discussion.

I'd like to introduce each of our planning committee members who are present today. First, Dr. Caroline Solomon. Dr. Julian Brinkley. Dr. Emily Ackerman and Dr. Sheryl Burghstahler. Thanks to all of you for your hard work thus far and your contributions to this committee, but more importantly, your contributions to making science, technology, engineering mathematics and medicine more accessible for people with disabilities.

And more inclusive. At this point, I'd like to turn over today's panel about mentoring and career paths Dr. Sheryl Burghstahler and Dr. Emily Ackerman, who will be moderators for today's discussion on accessibility, inclusion in STEM in the -- in STEM.

So thank you very much.

>> Sheryl: Hello, this is Sheryl Burghstahler. Welcome to our program today. Before we dive into our conversation with our panelists and speakers, I want to provide an opportunity for our speakers to give a brief overview of the highlights of their prerecorded talks. We hope that those of who you are attending this session today had the opportunity to view these prerecorded presentations, but before this conversation, be sure that you have a chance to watch them afterwards, because they are recorded and on the website.

We have two keynote speakers for this conversation. First I'd like to call upon Dr. Ashley Shaw, associate professor in the department of science, technology, and society at Virginia technology university.

>> Ashley: Thank you so much, and thank you to the committee here and the national academies and for those tuning in right now. I'm excited to have this conversation. A lot of what I had to say was about accommodations. Accommodations, and this might be surprising, don't make your workplaces more accessible. Accommodations are ways to get around making your workplaces more accessible. They avoid making structural changes that would allow more people to be present without the extra work that accommodations take.

And often accommodations take considerable work on the part of disabled people to be a part of the places that they are asking for accommodations from, to be included always means this contingency upon being allowed to be included, being believed about your disabilities, and having

the right sort of documentation and the right sort of supports. It's a huge time sink on the part of people across their career spans.

And it works in exclusionary ways. One of the things that I really enjoyed hearing reflections of a year ago at the ADA, at 30 years celebrations, particularly in the work of ADA 30 in color, was to hear about the main beneficiaries of the Americans With Disabilities Act have been white and already privileged disabled people.

People who could sue, people who can get documentation, people who have other advantages structurally that let them take advantage of the law in ways that they might be able to gain equal access.

But if we're interested in making science accessible and inclusive, this means recognizing structural barriers of all sort and remediating them. When it comes to disability, this can mean changes to physical infrastructure, this is what we usually think about in removing barriers and making sure rest rooms are accessible and these sort of things.

But we can also talk about this in terms of flexibility with regard to timing and pathways, with regard to how we view professional exams, allowing multiple pathways in terms of doing things, multiple ways of participating in career networking that are often exclusive to able-bodied people who can travel.

And thinking about flexibility in the arrangement of work and its timing. And also part of this means trusting disabled people. In fact, trusting your people, you don't need them to come out as disabled. When it comes to setting up workplaces and work situations that work best for them, believing them about how they need things structured so that they can best flourish in the work that you want them to participate in too.

Sometimes I think we have weird ideas about rigor and physical vitality that play into unnecessarily structured things that don't actually get to good science, but we artificially think that certain barriers are musts for people to get into our field, and in ways that make things exclusive, it makes things harder for all sort of people, and this means, you know, when we talk about making things more accessible for a wider variety of people, having flexibility, this serves wider communities too.

If we're interested in accessing inclusion on a larger scale, recognizing that people who can't navigate some of our structures will be people who have families with small kids or non-traditional structures or other work-life balance issues. When we make things more accessible for disabled people, when we remove structural barriers, it actually means a lot more people can participate and enter the world we want them to, to make science more diverse in general.

So those are some of my thoughts. Some of which I included in the video ahead of time, and I'll turn things over to JR. Thank you so much.

>> Sheryl: Well, thank you very much, Ashley. Those of you who haven't seen the video will definitely want to see it now, because they expands on these ideas, great ideas about accommodations.

Sometimes people think that the accommodations just fix everything and it's a retrofit, and it doesn't always work that well, doesn't necessarily provide equity.

So thanks again. And I'd like to now introduce our second keynote speaker, Dr. Harding, who is faculty member of the college of business within the management department apt Florida state university.

>> JR: Well, thank you so much. And thank you, Ashley. Thank you National Academies of Science, engineering and medicine for the invitation, for you your leadership role in -- your leadership role in elevating and highlighting employment, employment in the sciences.

The literature states there are still attitudinal, physical, programmatic communication barriers impeding the recruitment, the on boarding the retention and promotion of persons with disabilities in the workforce.

These impediments are interfering from the contributions and thriving within STEM and other workplaces.

I chose to couch my remarks kind of in an advocacy narrative framework in hopes of educating, entertaining, and challenging the listening audience in developing the leadership role of the talent of the persons abilities community-it's my belief that PWDs and institutions share a common bond. They like to solve problems.

They have the track record of solving problems. And to solve this workforce problem, we need to assemble the inclusion puzzle pieces together in a way that empowers individuals to contribute to their highest level possible.

Let's make it agile, nimble and flexible. Let's promote choice and opportunity. Without burdening the individual with too many unnecessary processes or hurdles to overcome.

Harnessing this untapped talent found within our community will diversify or workforce, make our institutions stronger, and ultimately advance innovation and competition and competitiveness.

These collaborations off and on campus will better reflect society as a whole. This is the one population that is inclusive. People forget everybody has an equal opportunity to join the community of persons with disabilities.

We need to better align our talents and use our universities to tear down that wall of conscious and unconscious discrimination. The number of individuals having the freedom to choose has evolved over time.

Just like our universities have evolved. The data says that people with disabilities are still marginalized regarding their opportunities. They have a higher unemployment rate, a lower labor participation rates, and lower employment population ratios.

In America, individuals with all abilities have the choice to change their interests in professions at any time. The Americans With Disabilities Act, almost 32 years old now, starts with employment.

We're not locked into a role or a career. We have that freedom to change our interests. This means full and equal access.

I read historically trained the next generation. Those early days was an exclusive club just for gentlemen to take their place in society, but now with the help of community colleges, colleges, in tier 1 universities, we have many different individuals building our professions to sustain and maintain our society.

If we think about our history, coming out of the civil war, we needed to rebuild the country, to expand opportunities, to fulfill that manifest destiny, right?

We needed to create unique opportunities for some of our black and brown brothers and sisters who were previously marginalized under discrimination laws and policies. The two land grants permanently and profoundly shifted the focus of science, particularly science, to meet the needs of that growing country and our diverse folks. The GI bill changed the middle class.

It then also created opportunities for people with disabilities to enter the university of Illinois for the first time, and the courage people had to make that happen. There was Ed Roberts over there in California on the West Coast in the rolling floods resulting in the rehab act, right?

The incredible example of art, access and functional accessibility is built into his building, and if no one has been there, that is super cool entry point there.

Our post-secondary institutions have been great change agents for the individual, for the community and the country. Our scientific method is has proven to be the best means of articulating the problem, identifying those issues, testing our hypothesis and disseminating best practices.

But what else are we doing to advance inclusion? What are you as individual leaders in your institutions doing?

Are you building a pipeline of talent that includes persons with disabilities? Are you communicating inclusive practices? Are you utilizing accessible technology like we are today that is inclusive. How about submitting your research articles in an accessible format?

Is the classroom sharing materials that everyone can use? Are you exceeding the minimum standard for your new buildings, your new labs and your new classrooms?

Finally, are you measuring your own small impact? Telling this story. Let's lead by example.

Remember, the number of persons with disabilities returning in college is only increasing, we're about 12.5% of the population right now. We can -- we can and must do better with the recruitment, with the opportunities, the development, and the assimilation of persons with disabilities.

Let's use our principles of science to advance workforce inclusion.

Let's be unafraid to build us into our facilities, our grants, our labs, our internships and our classrooms, rather than trying to fit us back in after the fact.

Into that mosaic of the American life. Let's be the solution, not the problem. Let's educate, let's empower, and let's employ. Thank you.

>> Sheryl:

>> Emily: This is Emily Ackerman. Thank you so much for that, JR. And I'd now like to introduce the rest of our panelis. That will join us for structured kind of Q&A conversation with Dr. Shaw and Dr. Harding. Today we are joined by Dr. Jesse Shanahan, who is a technical lead in applied AI at pull tteoron and Dr. Richard Boyce, an associate professor at the university of Pittsburgh. So welcome to our conversation, Jesse and Rich as well.

>> Rich: Thank you.

>> Emily: Okay, so we can kick off our conversation with some structured questions for our panelists and for those of you that are listening the web cast via Slido, you can add your questions and any thoughts that you have into the Q&A, and we're going to take those in and spend the last half an hour asking those questions for you.

So, Sheryl, would you like to take the first question.

>> JR: I'm sorry, you're right, I'm on it.

>> Emily: Oh, no, I need Sheryl to ask it.

>> JR: Okay.

>> Sheryl: Okay. I'm -- I'm not seeing the first question. Okay, in your space, what would a

100% accessible space look like? Thinking about the physical work space, but also other aspects of work, conference, travel, teaching, interviews, promotions, et cetera. So a 100% accessible world, what would that look like? Just imagine.

>> Jesse: Yeah, I guess I can kick us off. I think it really depends, at least for me, on whether I'm thinking about an academic space or the space that I currently occupy in industry. Because a lot of my experiences in academia, when I try to think about a 100% accessible space, honestly, I find that -- I believe it's truly more challenging in academia because some of the fundamental requirements that we have kind of built the institution on and some of our preconceived notions around what success and what intelligence look like I think are inherently ableist when you start to really deconstruct them.

And so it goes beyond ramps and accommodations and I mean, these are things that do help, but I would say that the far more challenging work to get to achieve that 100% accessibility in academia would require some uncomfortable conversations challenging some of those fundamental notions about, you know, what is -- what does it mean on the a successful scientist? What does it mean to be a successful academic because so of those requirements are, by definition, exclusionary, so necessarily to pursue a 100% accessible space, they would have to be changed.

And I think that's -- that makes the challenge of approaching accessibility in academia a little bit greater. Whereas one of the advantages of industry is it's changing at a far more rapid pace. Every start-up is a chance to dot better, do it differently. Every company could try something different.

And this is something that I personally have experienced, is I myself could not find success in academia due to this inherent ableism, but I have found a large degree of success in industry, simply because there is a flexibility there and an ability to find companies, sometimes younger, sometimes not, that are willing to change some of those preconceived notions.

But that's -- yeah, I don't think I fully gave you a lot of specifics and just simply said it's really hard. But those are some of my initial thoughts at least.

>> Rich: I guess I'll chime in, and I think that this is a question that really is requires a perspective, the perspective of an individual who maybe requires certain specific accommodations for 100% accessibility. So to say, what would 100% accessible space look like, I don't think I have the eyes of every person who is, you know, facing some certain kinds of barriers.

And I think it's going to be one of those things where we learn and we try to be helpful and we try to make improvements, and as Jesse said, some of these things are much more structural, much more difficult to address than owes. So physical environment might be a little easier to address. But, you know, changing certain attitudes that are very ableist and it really, in sort of almost insidious ways can really affect people with certain needs. I'm thinking of a conversation we had a little while ago about people who have hidden disabilities or disabilities that aren't so obvious.

You know, those sort of things are probably going to take a lot more time to address. My experience is more focused at the present time on trying to help our program in biomedical informatiks be a lot more accessible, welcoming and supportive of deaf scientists, deaf students.

Myself am deaf, but I have a connection -- not deaf, but a connection to the deaf community through a daughter who is non-verbal and received a tremendous help in the blessing of language

through the deaf community. What I learned and I pass this question on to some of the people who I collaborate with, one of them I passed it on to is a student who I have worked with for a couple years named Tobias and Tobias allowed me to share the name, and Tobias said there's a variety of accessible things in the physical work space that have to do with visual friendliness, for example, the colors of walls should be relatively dull, match the floor's tone. This would help to avoid straining the eyes and there should be no objects that block people's view, making sure seating is set up in a way that allows people to sign and communicate with each other without straining or struggling their necks.

And another colleague of mine sent something that worked out really well, which is this concept of deaf space, and I know we have on the panel Dr. Solomon, who actually works at Gaudet, who probably knows this backwards and forwards, but these are things that are new to me, so in our field, because there's been such little thought put into these things, we're learning as we go along.

And so I feel again back to the question a 100% accessible space is really dependent on the person and the individual, but there's a lot of things that we might have to do with our attitudes and flexibility that will help accomplish that as needed.

>> Sheryl: Great points. Other comments on this?

>> Ashley: Yeah, I really appreciate these responses from Jesse and Rich. These are, you know, two different ends of things. And I love the deaf space movement too and articulating, like, deaf expertise about design, right? Believing people when they say here are the things that work best for us. I think about going to different disability studies conference events and people who can move around the furniture are about -- or about the move around the furniture, right?

So it means that often I get enlisted with other people to move things so that we're in a semicircle or circle so that people can lip read if they need to, if we have an ASL interpreter, knowing where they're located and making sure they're visible.

But then also thinking about other types of disability as part of this. Making room between things. People have mobility aids. Allowing people to be in ways that are comfortable. Which is to say sometimes as a society for disability studies events, people way on the floor during talks, right? If you're fatigued or your body is hurting from the way you've been forced to sit in hostile furniture, which is just a whole theme we could talk about, you know, that being able to keep your body in a space even when your body is in a way that might be read as unprofessional in other contexts.

Right? So much of our ideas, this gets to what Jesse was talking about, our ideas about professionalism, particularly in academic contexts, are very structured and sort of what they are is not always clear. So particularly if you're neurodivergent in any way, reading the context clues for how you're supposed to behave can be a barrier, so having things laid out makes sense, but then also just allowing for flexibility that you could be many ways is really important.

You know, and I was thinking about this question, because this is one we were fed ahead of time, thank you for that, organizers, start on something we could think about. You know, I thought about it in terms of me. What does it mean for some place to be 100% accessible for me? And the thing is it's not going to be the same. Right?

There are times at which places are accessible for me, and later on, they won't be. Right? When we think about people who are migraines, right? When they by about people with food

allergies. When we think about people with chemical sensitivities. You know, when we think about variations in terms of pain and mobility. Right? I don't always use the same mobility aid. I'm an amputee, so I have so many more choices than the rest of you. I could use four crutches or a wheelchair, I could use a prosthetic leg. If I have the knee -- one of those cute little knee scooters.

I have options, and depending on what I'm driving on a particular day, like, sometimes things are physically accessible to me. When they're not at other times, so I think building in this flexibility, having multiple seating options when seats become hostile things for us.

You know, and making what's happening clear., you know, are really things. I also think about things like Azande communication badges, if people need to watch the room before they interact or don't want that direct approach when it comes to networking spaces. There's just a lot of facets. But it's not always going to be the same for everyone.

Something that's accessible one day might not be another if we don't have the right attitude about it.

>> Sheryl: So flexibility is one of the keys. Any other comments on this?

>> JR: I'd like to finish up, if we could, on this question. And 100%, 100% for whom, right? And when and why. And the choice issue, the empowerment. To me, I think it might start a little bit with when I roll into the classroom, that I'm not looked at as, liker some kind of surprise.

Some kind of, I don't know, almost ET beamed down and will take over this particular course because 80% of the population has not had the privilege or the opportunity to learn from us or to interact with us.

And then the whole component of being competitive in terms of our travelling or our conferences or our publication, how long it actually takes to write up a document or if you're using different technologies, I know we're thinking of building a new space.

And somebody said, well, I want to put you right next to your classroom so that you only have to cross the hall to get there, and I was like, well, that's kind of nice, but at the same time, that could be considered condescending. Why can't I be down the hallway?

Or better yet, I would prefer to be around a space that's more quiet so I could use my speech to text technology and not get interrupted from ambient noise in the hallways.

So, no, I would hope that our planners who are listening to us for our next conference are thinking about a hotel with sufficient number of accessible rooms that exceed the minimum count, okay?

And then there's airport transportation that meet a variety of needs, and remove some of these barriers so we're not, then, spending a week or two really of our time trying to navigate around an inaccessible event, and that all activities we do, so, therefore, in academia as we're building our new teaching and learning and lab environments, let's exceed those standards so that we're not having to force accommodations on the folks, right, to have a work around.

Let's just simply build a universally accessible space. So we've got a long way to go. But I'm going to be positive and I think it's a supportive community, and maybe very supportive community and one that I sought to enter because I work with government and at the state, local and federal levels, were -- which was some of my background before, also had its procedures, its bucket items, its five people the sign off on it.

So let's empower department chairs and deans to be able to make decisions quickly, nimbly,

and flexibly.

>> Sheryl: Great. Well, ending this question about 100% perfectly accessible space, we probably can never achieve the 100% for everyone. But what I'm hearing here is ideas that fit into two categories. One is what can we build into our environments from the get-go, born accessible. A person with a disability shouldn't have to ask for -- whether the building they're going to do give a presentation is physically accessible. That should be built into the environment.

Similarly, if someone goes to your website, they shouldn't have to ask to have things reformatted because it doesn't work with their screen reader. There are some best practices that are known to us. And so it should be applied, and we can find them out on the Internet. There are guidelines for making a conference more inclusive and so forth.

And then there are the accommodations, we will always have a need for some accommodations, but they should be easy to ask for and easily delivered, which is not always the case.

But too often groups think about accommodations first, like the only approach. Rather than building reasonably accessible environment, maybe not for everybody, but have some basic things considered that were brought up by our speakers.

So thank you much, and Emily is going to guide us through the next question.

>> Emily: So the next question has to do with burdens maybe that are particular to disabled people in science careers.

So we want to talk about the policies that maybe are economic, financial, maybe from grant institutions, that are present barriers to success across a career pathway.

So, for example, one that's very relevant to me is I pay out-of-pocket for personal care, just to get to my job every day. And I paid for that out-of-pocket as graduate student, I paid for the on my post doc salary because I make too much for government assistance. So this is a cost that I incur every day.

And I especially incur it to go to conferences and things where I need to bring someone with me and it's a whole, you know, process.

So that's just one example. But, yeah, I mean, I'm interested to hear what you all see as the present barriers, kind of on the policy side, that maybe we can work to change.

>> JR: Well, I'll jump in, and I'll echo Emily's perspective. There are real disincentives, okay, it's almost perverse, from a public policy issue. You have to be poor, you have to be financially indigent, right, which is separate from your disability issue, right?

In order to receive some subsidies or some supports that would help eliminate this challenge. And so this whole economic and financial and sufficient sufficiency, the challenge Emily is raising, I as a quad and really hundreds of thousands of others is that personal -- we've made this choice to work, to contribute, and so forth.

And as a result of that choice, we're not able to save as much, we're not able to prepare, you know, for that future of our retirement lifestyle that perhaps we would like to earn.

And often our institutions have not considered their policies and procedures have no element for that.

Except for when you travel on official job duties. Right? And so, you know, maybe that's six days out of the year, maybe that's ten days out of the year, maybe that's 15 depending upon, you know, how many conferences you're going to, but that's an awful lot of other days.

So I would say our institutions of higher ed, our colleges of business, our med schools, right, fighting for some substantive policy change and to bring it really relevant, President Obama's leadership, we had the able act, right? To help individuals earn money and not be penalized for it.

But they capped it at $100,000 and it only applies to individuals who acquired their disability prior to age 26. Well, hello! Does anybody else have a cap on how much money they can save and earn and apply?

No? And what do you mean it only applies to people who acquired their disability before 26. If you are a family and have kids and got a traumatic injury at 45, really the implication is far more significant than, in my case, when you was a 17-year-old knuckle head who didn't have additional responsibilities.

So I -- I would say these are real economic and financial challenges or how about your home, your accessible shower, right? The fair housing act does not require the apartment complex to put in a shower. So that expense is then born again by the individual with the disability, and you would want to be close to campus or relegated to living on campus. When you're a post-doc, that's not really the right place for you to be.

So those things all contribute to the pathway challenge, and so could we work into our grants, into our stipends to ensure that we have adequate, you know, policies and procedures that might mitigate some of these challenges, and do it perhaps maybe on a merit base that you earn it.

>> Jesse: So just to add on to that, I want to kind of come back to this idea that actually Ashley bright up earlier, which was the idea of kind of many ways of existing in a space. And I want to expand on that, because I think that when you're looking at policies and you're evaluating them, you have to ask yourself, right, what is the goal?

I would love to believe that the goal of our academic system in STEM is to produce the best scientists and the best scientific research. So we have to ask ourselves, are our policies truly in support of that or are they about creating the appearance of what we believe successful scientists look like?

Because whether it's -- you know, I'm so glad everyone has brought up so far the financial burden, because especially as a graduate student, that was brutal on top of all of the money I was spending for medications and doctors appointments and everything else, it was below 25,000 a year, which is especially for I was living in the most expensive state in America, and that did not go very far.

And no disabled student should be put in the position of choosing between food and medicine. But even moving beyond that, it was the policies that said a successful graduate student can never miss any of our mandatory three-hour seminars that just so happen to be at the same time you have physical therapy.

So you must be unsuccessful. You know, you have to take quantum mechanics at 8:30 in the morning, and no, there no other time to take it, it doesn't matter the if you have a sleep disorder. That's a -- a successful scientist just does that. And these things pile on. One -- you know, to some of the audience,ed might seem like, oh, an 8:30 a.m. class, get over it. But these -- all of these different inaccessibilities, they stack, and I have to -- I come back again and again asking myself, is this truly about creating the best scientists or is it about we have a preconceived notion of what academia ought to look like, what our students, our graduate student, what our post-docs what they ought to do, what their schedules should look like.

And because we have all these preconceived notions, we're creating policies that perpetuating the inaccessibility and ableism that are inherent in those poll that's the first place i recognize this is paradigm shift, so it's very hard to sit there and ask yourself is this policy accessible, is this inclusive to all students with disabilities.

But really ask yourself, is this actually creating better scientists? Because I would personal -- personally, I truly believe that most of the time, the answer is no.

And it's really getting at the appearance or the seeming of being a scientist, because we have these notions of what that is. But, Emily, I think you were jumping in there as well. I don't want to cut you off.

>> Emily: No, I think you're absolutely right. I think we really cater to what a scientist has always looked like and upholding that vision, which isn't true. That's not what a scientist needs to look like.

Yeah. Would anybody else like to chime in on this question?

>> Rich: Just a couple of things that I thought of through this discussion, which is great and informative. I was thinking about some of the key career transition points, at least in an academic pathway, so I've heard discussions about the graduate school experience and the challenges there.

I know that, you know, there's also what do you do when you're looking for a job or a post doctoral lab placement or looking for a faculty position where you're in an early career development stage, and an associate director of a training program, you know, it was eye opening to me to realize, you know, there's a lot of things that we would have to really, you know, work hard to obtain that people would really need, and that's part of the policy changes that need to happen.

So our training program grants should already have very easy mechanisms. So, for example, if someone who is completing a post-doc and starting to look for job opportunities requires, for example, you know, interpreting, two interpreters to be available for those job talks and those lab visits and so forth, you know, making sure that that funding is there, and it's not a burden on the person to try and figure it out.

And also being able to communicate that to other people so that there's an open playing field for where the person can be placed, and I think with the NIH policy in some cases I've heard that's true. With the F grants, but we're working on the.-15 proposal and another R-25, and I don't see that very clearly spelled out at that point.

So that was one of the things that came to my mind, is, you know, how do we ensure and preemptively lower those barriers to things that are going to be super helpful and level the playing field so that, you know, all of the opportunities that a person could go for are there for them.

>> Jesse: I like that you mentioned these transition points, because that raises another thing, why do we have an expectation that people are going to constantly change institutions and move all the time.

Because at least for me, setting up my care, which is, you know, a rare condition, requires finding a doctor that can actually treat and it setting all team of specialists. This can take months. So if I'm having to move jobs every one to two years until, you know, theoretically achieving some mythical unicorn of a tenure track position, then it's necessitating a lot of burden moving away from your care systems, moving away from the support systems.

And trusted healthcare professionals that maybe it's taken years, if not decades to form those

relationships and find the good doctors and you have to move away from them. So I had hoped no a global pandemic would open our conception of needing to be present in person and help people realize that virtual presence is just as legitimate. But I still see this requirement that people must move constantly.

And I think that's another policy that I think is very exclusionary to anyone with either financial hardships and/or disabilities.

>> Ashley: I think Jesse is so right there. I think about all the cheap things we could fix, right? So I get that there are huge issues around financing and the extra burden it costs disabled people to be able to get care, to move, to get the equipment, the things we need. But I think about just the social norms that are erected in our field.

I remember having a meeting with one student at one point and I was interrupted and the student goes, I've had enough eye contact today. Would you mind if we don't. And then we looked in opposite directions and continued on in our conversation about the academic thing we were both interested in, and had a successful meeting.

We didn't need to perform this weird thing we really like to do, at least near typical people are really into looking at people eyeball. That's unnecessary. I think about the ways if you're wearing headphones that people interpret what you're doing. I think about, like, even Zoom camera norms, this got so complained about when we had to pivot to teaching online in spring of 2020.

And I don't know if people are there. And you know, worries about Zoom. Most of us have adjusted. And most of us feel like being on camera all the time is actually not great, if you're sitting through multiple hours of stuff each day. Our near divergent people maybe noticed it sooner that they didn't like to be gazed it a at all the time but in fact, being gazed at for 8 hours a day of work is something none of us likes.

The things a don't matter shouldn't matter, and it's a shame we make them matter to so much.

>> Emily: Yeah, that's an excellent point. And it really makes it feel like we can all do something about, you know, it's not just, like, I have to change the way my funding institution gives me money, but it's like, I can be receptive to turning my camera off and feeling okay about it.

Like, that's just as, you know -- we're making progress in the same way. So thank you all for that question.

I'll hand it off --

>> JR: Before we leave that, Emily, I think we need to end on a positive stroke a little bit, guys, that in fact, COVID has broadened the world of some leaders and some members of the community, and that that telework idea, that accommodation really was good for everybody, and it is not a special privilege.

And so I think there's room for hope and there's room for traction in realigning some of those expectations, policies, procedures and way to integrate us.

>> Emily: Yeah. That's true.

>> Very good point.

>> Sheryl: And I think there's a lot of room for optimism too, because we've been down this path. There are quite a few women here, women scientists. I'm a little older generation than some of you, and in my day, in graduate school at the University of Washington in math and computer science, and I was -- this was just a typical example, but I came into a class of 60

students, I knew it was graduate portion mathematics and I knew it was difficult class and a faculty member who had a reputation of liking to screen out people is and a lot of people dropped out i remember I was the only girl there, woman there at the 60, and when it was down to six at the end of quarter, he says, wow, well, there are at least 67 of you left and he looked at me in front of the whole group and I didn't expect one of them to be you.

And it's like, that outed all the time. You don't look like a mathematician or someone interested in computer science. And that's the same now for people with dangerouses if you think about it in some ways. So particularly Dr. Harding was saying about that, you know, you don't want it to be a surprise. So if we really believe we want the best scientists, the brightest and best with the most creative ideas and so forth, we can't afford to leave out any population.

But certainly people with disabilities, and the more of you -- those who have disabilities that are out doing great stuff, the more that people at least get used to that aspect of it. But we have a long way to go, certainly, but I also am very optimistic.

So let's go on to the next question. How would you want an anti-ableist mentoring or management relationship to look?

>> Ashley: I mean, for me when I think about what it means to be mentored, having someone who recognizes that there are multiple ways to do work is really important, instead of thinking there's one linear path.

And just recognizing the ableism all around us. Right? I think a lot of people who aren't -- who aren't disabled maybe don't see all the ableism -- and even if you're one type of disabled, it doesn't mean you understand all the types of ways it is to be disabled, so having some sort of perspective, particularly on the extra labor it takes to be disabled, because I feel like a lot that is just very much covered up by accommodations processes, which are necessarily secretive, right? You're not supposed to bring everyone into your meeting to talk about your disability, that's a violation of a number of things that we would not want to violate, but it also really keeps us from organizing together and finding each other when we're always put into an individual process.

So I really think about, like, having community as a really important facet of mentoring. So I learned from Emily Ackerman, among other people in my disability community who I have been in touch with, and sort of mentoring isn't always one institution when it comes to disabled mentorship, but that sort of understanding and seeing the ableism.

Aup talk about this when I teach disability study classes as seeing the marinade, like, ableism is like the sauce we're all marinated in and you have to, like -- it's wipe off some of that marinade to actually see things more clearly. Like, it's just the lens.

Jesse's pointed this out in terms of, like, how we -- like, who -- not just who we expect to come, but, like, the sort of, like, facets of hidden disability that unless if you're part of a community, you don't -- you don't -- you're not -- you didn't know it was on you the whole time.

Which is like a really crude way of putting it. But really when I think about what it is to be anti-ableist, you have to know what it is to be ableist and a lot of us have internalized ableism and are working through it and a lot of us are ableist towards other types of disables and some of our communities are. I'm an amputee, and a lot of people say at least my mind is not affected, and I think that's garbage. I have chemo brain. My mind is definitely affected and it's not literally cut off, but, like, we -- most of us, you know, are multiply disabled.

But that's sort of lateral ableism, even within and internalized ableism. You know, to be

anti-ableist you have to know and it takes a little introspection there too.

>> JR: Well, I'll jump in here. I think the introspection, the community, and the willingness to open up to ask for and to receive help in a sense, to me, those were really some of the really heavy lifting, as a young person with a disability.

And it was because of my brethren at it were state universities and hundreds of individuals who just went about being themselves, right, who were going to be engineers, who were going to be writers, who were going to be CPAs, they just did their thing.

Learning from them and understanding how to better remove those barriers is magnificent in terms of community and being able to look at Ashley or Jess or Emily, and you know, we get it, right? But then I think, you know -- our chairman, from Cooper, right, he gains an extra kind of unconscious respect for the journey of the quadriplegic versus the journey of the para, while many of those challenges are similar, some of them were elevated.

And to I think that's really beautiful. But at the same time, I've got a neighbor who -- in the hallway upstairs, and you know, he is a little older, a little senior, he is a faculty tenure in the finance department, but he's just an incredible little gift. Who helps you navigate, giving you those mentoring pieces, coaching you on your promotional materials, did your package get right? Did you recruit the right faculty member to do the observation of your teaching?

Right, because not every faculty letter comes with the same oomph of some of the other letters. And those nuances of stripping that junk away so our disability and the burden of overcoming it on a constant time variant is exhausting, and I think people just acknowledging that that in itself is a journey would make a difference.

>> Jesse: I keep coming back to the question being not just what is accessible mentorship look like, but what explicitly anti-ableist mentorship looks like, and that I think is a really challenging thing to think about, because I have plenty of ideas about what accessible mentorship would look like.

But for something to be explicitly anti-ableist, I definitely think Ashley had the crux of it, which is they have to recognize what is ableist first, to be anti-ableist.

But then also it -- I have found at least in my experience that a lot of the burden is on my shoulders to not only understand my own disabilities, to an extent that perhaps I was not ready to, but to also understand the solutions and the fixes and all of the, you know, possible accommodations I might need, and then it's my job to go to the mentor and explain all of that.

And I think for me, anti-ableist mentoring would -- I'm not sure if there is a way to have this without having a mentor that perhaps shares similar disabilities to me, but to have that mentor already be informed somehow, so that it's in the my job to come in and sit down and educate every single time.

To sit down and say, okay, I need -- I'm going to have to give you the talk on hi, I have ADHD and what that means is I'm not going to come and work eight hours every single day. I'm going to work 14 hours and none at all and then, you know, four hours and then I'll be staring into space maybe for an hour and then, you know -- it. As out, but it's going to look very different than perhaps what you were asking me to do.

And it might be weird hours. And to have that conversation over and over again, you gamble every single time with is this mentor manage, PI, whomever, is this person who is in a position of authority, are they going to respect this?

Are they going to listen? And I think a truly anti-ableist mentorship would, one, have that mentor be informed. And be proactively looking for ways to make my particular relationship with them, whether it's a research or, you know, an industry job or my professor, making that particular environment less ableist, not just accessible, but less ableist.

It would also, I think, re-- you know, I have never had someone sit down and say, what does success, what does that mean for you? What do you define success as? Every single manager, mentor, PIer has come in what they believe success is and has judged me and mentored me accord league, instead of asking what is does a successful career mean for you? What are you aiming for and allowing me to define that in a way that is accessible for me.

I think those arer the two components I would add on top of the marinade that Ashley mentioned. We're crafting a dish, I think. Not to torture the metaphor, but, yeah, I thought that was a really -- a very wonderful way of explaining it. So I'll just add those two things on top.

>> Rich: I super appreciate these comments, and Ashley in particular, the marinade metaphor is a good one. I have to admit, I've brought my ableist perspectives in certain way, and then maybe only recently realized I did.

And, you know, fortunately, you know, some of those -- it gives us an opportunity to do better next time. And it makes my think about one perspective, anti-ableist management and perspective, as a mentor, am I listening really closely to my mentee, am I seeing that person as having absolute dignity in themselves without meeting certain performance metrics that ableism imposes upon us.

Like in our program, for example, in my mentoring career, it was laid down you have to publish four authorship -- four papers a year, of them first author and every faculty meeting even now in my department, we hear the numbers and we're compared to each other and they show it publicly as this sort of crowd way of reinforcing those counts and those numbers.

How am I advocating? How am I going to stand up against that for the person who I'm mentoring, who I know is an incredibly intelligent and brilliant scientist, like you said, Jesse, maybe has to work in unconventional waysish or works most effectively, let's say, in unconventional ways and it may not look exactly like what that typical stereotypical thing that people are looking for who are very ableist like myself in some circumstances have been.

So I'm thinking about that, that advocacy for that person, so we can be there and both cheerlead and support and adjust but also communicate when those pressures that we have been kind of trickled down through us as mentors within a particular institutional environment are not a good fit.

And maybe they don't make sense. Like you gist said here, we can question those in a respectful way and try to move them around and change things.

One other thing, just more specific to the work that we're doing in expanding our program for inclusion of deaf students and scientists, so, again, Tobias allows me to share this, talking about having the mentor be trained and understanding the culture, you know, in this case deaf culture.

And making sure the there's direct communication and one clear thing here being stated, it's never okay to give comments such as I'll tell you later or I don't feel like repeating the question, so basically losing patience because the communication is not happening at a rate that it's supposed to be or here is another comment, such as looking at the interpreter while commune skating instead of looking at individual you're communicating to.

These are all things I think without some education and knowledge might happen naturally, so one of the things that we try to do in our program is we try to help our faculty who are going to be teaching in classes to know these things are things that you might do without even thinking about it, maybe you'll speak too fast, not take enough time to make sure the interpreter is keeping up with you.

You know, do you really care about people learning? All the people in your class learning, or do I really care as a mentor that my mentee is getting all of the best help in terms of mentorship that I can provide. Yes, I do, so I'm willing to do these things and our faculty and other folks should be as well. And I think that begins to move towards an anti ableist sort of perspective.

>> Emily: Yeah, thank you for that. I think that's a great segue into our final question before we answer audience questions. So if you're listening and you have a question, make sure you write it in the chat.

And so, yeah, you've provided a great example for our last question, which is drawing on everyone's range of experiences. What are some examples of times where you have been in or created anti-ableist specifically spaces?

So, for example, classrooms and things like that are great examples. We're also interested to hear Jesse's in Sweden, and your comparison between Swedish and American culture, I guess you could say. So maybe you'd like to start, Jesse.

>> Jesse: Yeah, sure. I think there have been a few times that I have been in, I would say, more anti-ableist spaces. One was a conference that I attended in 2015 that was called accessible astronomy -- or inclusive astronomy. I want to put accessibility in evening ill was on a panel called accessibility in astronomy, and there one of the speakers invited everyone to move how they needed to, if you needed to get up and walk around, and this was during a keynote. And sit where you want to, lay down if you want to, fidget if you want to.

And you know, I'm remind again of Ashley term from earlier of hostile furniture. And that particularly in conferences, I don't know if other people have had some amazing experience with comfortable chairs, but conferences are the worst for comfortable chairs. And I suddenly felt that this environment was welcoming. There were many -- all ways of participating and paying attention were welcome. There wasn't an expectation of me performing paying attention, and that's something that has been challenging, especially in -- even in virtual meetings with having the camera on, and that actually is a less accessible thing, I would say, here that I've noticed in Sweden, is that there is a far greater pressure to, if you're in a virtual meeting, to have your camera on.

And I have been the sole person with my camera off in meetings before and been called out and people are like, is your camera not working. No, I don't want the turn it on today. I pay attention a lot better when 30% of my brain isn't occupied do I look like I'm paying attention. So there are -- can't remember who said this, so I apologize, in our meeting that we had last week, kind of brainstorming questions and ideas for this, someone brought up this idea that real accessibility, you don't notice.

And I think that's a really beautiful idea, and I've tried to pay attention over the last week, a little bit more to the spaces around me to try to find those kind of hidden accessibility features.

Because one of the things that has surprised me immensely here in Sweden is the walkability and the wheelchair friendliness or, you know, mobility aid friendliness of the spaces.

That it isn't just -- it's not explicitly like here is your disabled entrance or parking space or something. It's just that everything is that way. It's not otherred. And I thought that at least for me, I found this to be a very beautiful idea that creating accessible, anti-ableist spaces does not mean separate. It's not separate, but equal that never works. It's, you know, changing everything to be accessible. So this means that the ramps that lead to any place that has stairs to kind of climb, there's a lot of hills at least where I live. There's also a ramp.

And that helps people with bikes, that helps people with scooters, that helps people with strollers. That helps people with wheelchairs. Plus there's lots of lifts as well.

And I -- but I didn't notice at first. And then, you know, these -- this idea of the invisible accessibility, I think, is -- I keep daydreaming about it, honestly, of what would it be like to truly exist in a space where I didn't have to constantly think about access in some way.

Because I don't -- I don't think I fully realize just how much mental energy that takes. How much of our brain power, how much of our physical energy is taken up with constantly having to navigate the world with a disability.

And this quiet, this hidden, this, you know, invisible accessibility, if you will, if we -- if we truly lived in an actual accessible place, I think then that burden could be lifted.

Because we wouldn't have to constantly be wondering, you know, is there an accessible bathroom, is there an elevator or how many stairs up is it or what kind of chairs are there going to be or how long am I going to to be asked to sit in this meeting. I could go on, of course. That's what I've been hunting for when I'm thinking of anti-ableist space, this idea of accessibility that is so engrained, so entwined into the design and policies of a particular institution that you don't even notice it.

So I think that's -- yeah, that's what's been on my mind especially when it comes to this question.

>> JR: I need the jump in and follow Jess, and continue on that theme. Okay? That is the best space to be in when you're not being exhausted or taxed or worried about yourm disability access.

It just appears almost magically, the way you feel comfortable in the environment. Right? And that goes for everybody. And it makes me think about how sometimes we have evolved and how other times we haven't.

So, like, pre-Uber, pre-Lyft, I had a chance to go out there to Australia, and the number of accessible wheelchair cabs just touched my heart. I mean, I could jump in a cab and go to the lunch or the coffee shop or the movies or down to the beach at a blink of an eye and not have to plan it out like it was a dissertation or a research study.

Right? And then here we come back to America, and then this Uber thing is supposed to transform everyone's lives. Well, most persons with disabilities still aren't using Uber or Lyft.

And as we get into this next space of automated vehicles and how are we going to interact with that? What does that look like? Those are expectations.

So to me, the anti-ableist space is where we have a voice at the table. That we are part of building our futures and transforming what we have now, rather than constantly having to be that squeaky wheel, right? Saying, oh, my, what about us?

What about us? And you know, I think we would be in a much better space for everybody if we could just take down some of those barriers.

Because the truth is as we get older, we're all going to be facing some kind of challenge. We all want to be able to read our 401 statements, we all want to be able to balance our check books and we need to be able to do, that to Jess' point any time, anywhere while we're enjoying the game of life.

>> I definitely don't want to hog anything, but I wanted to add one thing on to that, because I loved what you built on there, and I think this brings up two really important things. One is this is why it's critical more places accept and become inclusive to work from home.

I have poured so much effort and unfortunately, money into making my home space and my homework environment as accessible for me as possible. And if, you know, an academic institution, if a business is not willing or not able to replicate that, then please, we need to respect people being able to use the spaces they have crafted for themselves.

And then, you know, to your point about this -- this idea of all of the, you know, the burdens that we kind of are facing in -- and you mentioned the going into Australia and all of the cabs being accessible for you, I think this is why it's critically important especially in the technology component of STEM, that technology is built without accessibility from the ground up. It has to be there from the start. This is in the an oops, we're requesting the tack on accessible Vance some day down the line. It has to be built in from the start.

And that existing everywhere is something that could greatly, I think, improve the accessibility of our society. But unfortunately, it requires that the people building this technology and of course, working it an AI company, I'm incredibly mindful of this, that that technology has to be inclusive from the very start.

So, yes, I'm sorry, though, Sheryl, please continue.

>> Sheryl: Oh, just going to acone practice we have on our campus through my project, the co-it center at the University of Washington, is I look around at spaces that are being created on our campus, and one was an engineering lab where I was actually the -- the associate director of that was being built and another one was a maker space and the business school. When I see these, I figure out who is designing them, and there's usually an architect involved and then the project people, and I offer to bring a panel together to meet with the architects and with the directors, actually, usually the basic plans have already been written -- develop at that time.

And there's always a reluctance. People are nervous about this. I'm going to just bring some students here with different types of disabilities to give you input. Just share yours plans and give input. And they tell me that they're really nervous because, well, I don't think we're going to be able to do all they want. Isn't that your job, engineers and architects. Shouldn't you be used to that. There's this reluctance because I don't know how to turn down an idea from a person with a disability. I don't know. I guess. And they usually are pretty basic thing. I remember in the engineering lab, one student who -- all types of disabilities, we had about six people there, and he said, well, where is your button going to be to open the door.

The electronic door, here because he needed a button. And they showed him and said, if I push that button, which I'm capable of, I'm going to have to back up really fast or that door is going hit me. And another person looked at the bathroom spaces and said, well, you know, I'm not going to be able to turn my wheelchair around and some people with visual impairments were bringing up different ideas and even learning disabilities about seeing the speaker in the little presentation area and stuff.

And after the meeting I met with them and they were really surprised that this group of people went and come up with -- wouldn't come up with these unusual and unreasonable requests, so people have this idea if disability is involved, it's going to cost a lot of money and be a lot of work. It's just not true.

By the way, we pay those student honorariums to do that. And that's an important thing too, that we value their expertise. They're not going to make loot of money. Maybe $100, but for a college student, that's worth -- buzzing over to the other side of campus. But we always give them a design independent or honorarium.

>> JR: And other people get stipends, and it's quality equality.

>> Sheryl: What you learn as a person with a disability is of value to people. If you're talking to a group of special ed teachers or regular ed teachers or an opinion or talking to learning designers and make things accessible, you should get paid for that with possible honorarium, stipend, that's a common practice. They're usually surprised by, the way.

>> JR: And that's fantastic. By going -- Jess, the ICT is built into the law of the '98, right? And so are the accessibility standards. But it's is minimum expectation, all right, that's all they have to do. 50% of the doors, right? Well, wouldn't it be nice if everybody goes through those doors.

And then the last piece I'll end with, returning to what's that 100% question, well, when I don't need signs anymore, that tells me this is my entrance. Right? I'd like to go in with Sheryl and Emily and Kate, and we just go all through same door.

>> Rich: These are all great comments and one other direction this can take, too, is in the information that people are given, for example, in education, as we're training folks, and I did hear the talk by Dr. Giudice for a few talks ago about spatial information and presenting that for people with low visual acutety.

And in our experience, with, you know, expanding access for -- and for deaf scientists in our program, you know, one of the eye openers for me was one of the first students through our program, you know, brilliant scientific mind, really struggled with English, and there were two kind of compounding factors, so one was a little bit of a reading disability that she communicated.

And the other was that throughout the course of education, you know, different interpreters have been interpreting things slightly different in terms of the scientific context and grammar, and we had two things going on there. What we tried to do was build out technology that would make everything more visual, so you would have multimedal and the detection of the scientific concept and then visual figures and where possible, and to as much of a degree possible, we would have ASL around that concept.

And we brought that into the things that were being read, YouTube videos, websites. You go to a website that's maybe a bioinformattics website and where you're trying to accomplish a task and the documentation around that multimodal.

And it's really, you know, one of those things that was eye opening as well because you see all of the vies out there teaching concepts and all of them are not captioned or auto captioned with all kinds of mistakes and it gets worse and worse the more specialized the topic.

So I think I envision, and I want to be a part of this, where we -- we really start to make all of that much more accessible and multimodal so that visual, you know, dependence on reading is not requirement in order to obtain and capture all this information.

It's just another space, I think, where this perspective needs to be brought in.

>> Emily: Yeah, that's great. And I think we have one audience question. that we can take the last five or seven minutes to answer. The question is, how can STEM professional spaces intentionally invite people with disabilities to include and create a community for people with disabilities within STEM?

>> Ashley: Hire disabled people.

>> Emily: Yes.

>> Ashley: In positions of leadership. And set them up with all the things we talked about throughout the rest of this panel.

>> Jesse: To add on to that, I would say disabled people already are there even if you haven't noticed. And this is of course talking more about invisible disabilities. But I remember after that conference and the panel that I was on accessible astronomy I had somebody come up to me and say I'm a professor, and I have MS and I've hidden it my entire career and I'm terrified number is going to find out because I think I'll be excluded and judged.

So I would tell you in a disabled -- disabled people already are present, and it's -- but I think Ashley really hit the nail on the head, that hire them. Pay them. You want people to do work creating a community, pay them for it.

Because far too often, you know, DEI work is seen as something that we should all do volunteering our spare time, as if we all don't spend enough energy and time related to our disability already changing the space often is seen as something we should do out of the goodness of our hearts.

Pay people for their work, and I think that's one of the ways that you can also start to correct some of those inequities related to finance, is if you want disabled people to be present in your community and to create accessible spaces, you want their expertise, you want their advice, then hire them, put them in positions of power and pay them.

>> Rory: Although we need the people who have hidden disabilitiesed in some ways to disclose to help those of us that have visible disabilities, because it's important for the community to know that there are people with disabilities already among them that are very successful to open up doors for those of us that can't hide our disabilities or have to disclose.

>> JR: Absolutely. And that gets back to what does 100% space look like? It's a space where people are comfortable with that disclosure. It's a space where people are compensated for their skills, a space where people are invited and are recruited at a young age to come, hey, look at my lab. Let's look at the cool things I'm doing.

Look at Jesse and Emily, you're going to be my mentors here for this tour. Let's grow the next cohort of leaders. Right?

So we are in that position of change. And in that position of power. And the position of influence so we don't need a DE and I program. We shouldn't have to pass laws to get things done every time we want to do something. People should just have the right attitude, the right access, with the right kinds of empowerment tools just because.

>> Sheryl: And look at our post-secondary institutions, we need to look at what we were teaching. Most computer science departments are today graduating computer science students with degrees that know nothing about accessible IT design. And we have a project where we're working Nationwide with companies actually, like Microsoft and Google called teach access.

Really promoting that, but also engineering, are we teaching people how to design accessibly?

We need to look at that -- we need to look at that too.

>> Jesse: I would even broaden that beyond IT and say anyone who will be put in a position of mentoring or teaching students should be taught about accessible pedagogy, accessible mentorship, because it goes -- I completely agree with you, the amount of times that I have unfortunately had to sit down in some kind of software development project and remind people that, you know, we need to make sure things are actually accessible, completely agree. There's just not, you know, that part of the curriculum when it should be mandatory.

But also why do we often allow Ph.D.es, post-docs to move forward in their career and teach students when they've never been taught how to teach, let alone how to accessibly teach. I would -- ideally I would love to see that become a greater part of our curriculum in STEM.

But also I would say that whatever changes are made, they should not require disclosure. Because disclosure can have an incredibly high cost and particularly if people are multiply marginalized. So people of color who have disabilities shoulder that burden far greater and any accessibility that's offered should be required without the student or professor having to come and disclose first. Ideally disclosure, we could get rid of that entirely.

>> Rory: Well, I would actually take it one step further. I think we should get rid of reasonable accommodation, and that just it should just be accommodation, right? That the ADA is over 30 years old. So I mean, there should -- people should be making facilities, building, resources software, websites, all accessible to begin with. It's not -- the whole reasonable accommodation concept was really put in as a transitional concept.

I'm curious to see what JR has to say about that.

>> JR: Yeah. Absolutely, Rory. It was. And it was a bait or a compromise with the politicians and the business community who were afraid of persons with disabilities. But the truth be told, they're not fulfilling their obligation in this contract we made. I was just down at a conference in part of Tampa, Florida, in a nice little waterfront property, paying way too much money to have a bed and a toilet, and the roll-in shower was built incorrectly and it could tell it was the reasonable accommodation standard or the barrier removal product rather than all the other rooms that they had modernized and updated that the disability room was somehow of less value.

So absolutely, Rory. And we have a piece in it that says equal access to all goods and services. Well, everything that's moving forward, all in this tech world, in this new fuel line space, have you seen accessible charging stations for the new Teslas and new electric pickup trucks coming?

I haven't seen any. Are those functional, or the apparatuses functional for those with fist elements can pick it up and use it and stick it in a vehicle. The answer is no. So we have a long way to go in this advocacy, this policy.

But I'd like to remind our audience that you take one bite of the elephant at a time. Right? Take care of your lab, your department, your research grants and your college. And the rest will work out. If you lead by example, others will covet what you are doing.

>> Jesse: And just to, I think, add on to that, no space, actually, when we talk about 100% accessibility, that's the perfection that we strive towards, that probably isn't fully possible. So the idea of, you know, getting rid of, say, accommodations or -- and replacing that with 100% accessibility, we cannot fully anticipate all of the access needs of every variety and combination of

disability, but what we do need to do is make our spaces as accessible as possible, removing as many barriers and also make it a lot easier for people to request the changes that they need without disclosure.

And so I can't see a way of -- I mean, I would say let's get rid of the laborious, often stigmatizing process that we have currently for accommodations, but I do think there needs to be an avenue for people to ask for what they need, but we need to ensure that they're listened to, given what they're need and empowered to do that. I think a lot of times that we quoted about the percentage of disabled people in undergrad, I would honestly, I would urge you all to think of that number as being much higher.

Because a lot of people are not willing to disclose. So --

>> Emily: That's very true, yeah. Well, I'm so sorry to be the one to cut this off. But we are at time. I want to thank everyone for sharing your thoughts and ideas. You're so valuable to us. For this conversation that we had today about improving accessibility and inclusion across this clear pipeline and, you know, we hit multiple axis today. And so as we said at the beginning, this is our last event, so we're very sorry to be closing out this conversation series.

But all of the events have been posted online. You can watch them to your heart's delight, and we hope that you enjoy the rest of the day and thank you for coming and for joining us today. So thank you!