**Ulrike Bavendiek** OK, now let me introduce Dr Shiri Lev-Ari.

Dr Lev-Ari is a lecturer in the Department of Psychology at Royal Holloway University of London. She has also worked in some very prestigious institutions around the globe, starting off at the Interdisciplinary Program for Outstanding Students at Tel Aviv University. She also holds a PhD from the University of Chicago and worked as a postdoc at the Laboratoire de Sciences Cognitives et Psycholinguistique in Paris. She then continued to work at the Max Planck Institute for Psycholinguistics in Nejmeegen in the Netherlands.

Once I started to look into Shiri’s research, I have to say I was hooked. So, for example, in addition to her work on foreign accents, she is also working on a project that showed that the size of the community of speakers of a given language [sound interrupted].

OK, so anyway, so one of the projects that Shiri has worked on was showing that the size of the community of speakers of a given language predicts patterns of of language diversity and that in fact a bigger community of speakers seems to develop more systematic languages. So another important, I think, research project is keep informing us about the results. Anyway, so, Doctor Shiri Lev-Ari’s research focuses on language, and what cognitive and the social. So working in applied linguistics myself with a focus on language learning and acquisition, I know that in that field atleast, we greatly benefit from the input from cognitive psychology, the neurosciences, sometimes medicine, to underpin our understanding of language acquisition. And as a teacher in sociolinguistics, I sometimes miss that link. Maybe it's just because I actually really miss something and it is there, but I can't see much of that. So it was a revelation for me when I saw Shiri’s work on accents. There is a lot of important work, of course, on the social values that we ascribe to different accents, not least in this university, where we just had a special interest meeting from the British Association of Applied Linguistics at the weekend on “Empowering students via knowledge of language, variation and change” that was organised by the English department. So there is a lot of work on the social implications of accented speech, and I'm sure that as speakers with an accent, we have all experienced some social benefits, hopefully, but also repercussions of using certain accents, may they be foreign or regional or of any other social categories. So to see that there is evidence from the cognitive sciences to support our experiences as accented speakers independent of the social values, I found that very reassuring and of really great interest for institutions to form policy maybe, but also on a more personal level to inform first and second language speaker interactions. So without further ado, I hand over to Shiri Lev-Ari and her talk ‘Why don't we believe non-native speakers and how can exposure to foreign accents reduce this bias?’

**Shir Lev-Ari** Thank you very much. I was just trying to do sharing and remembering to share, so this is all fine. I think the slides are ok now. Yes, just a second. Let me just. There is a way to hide yourself. Hide self view.

I would appreciate if some people can keep the camera on. It's kind of nice to actually see who I'm talking to. Thank you for inviting me and thank you for that very kind introduction. And you actually already helped me by basically introducing my first slide where I just want to say, because I know there's often a confusion. I just want to explain that what I put in this talk, I will not talk about prejudice against non-native speakers. It's not because there isn't any, there's a lot of prejudice against non-native speakers, both implicit and explicit, if you're interested in that, here are several references that you can go and look at. It's also important to know and research prejudice. But this is not what I do. So what interests me and what I will talk about is how even people who are not prejudiced might still discriminate against non-native speakers just because of the cognitive mechanisms that underlie language processing. So even the reasons that are just like cognitive reasons without even if they're not, they don't hold any prejudice, including not implicit prejudice. After showing specifically that because of processing fluency, and I'm going to explain what that is in a second, people might discriminate against the speakers. And specifically, I'm going to focus on the fact that they're going to believe non-native speakers less than native speakers. I'm also going to talk about how we can reduce this bias and specifically about the fact that exposure to non-native speech can help us reduce the bias. And then I'm going to finish with a short section just to show how exposure to non-native speakers can be achieved if we have diverse interactions, so diverse environments. I'm going to talk about the benefits that go beyond just reducing bias, but even in how diverse environments can just improve communication overall.

So first of all, I want to start with a short task. So I'd like someone to look at the chat. So if you can all just write all the words you can think about, let's start with a ‘K’. And if, can someone just tell me what the chat says? Any word that starts with a ‘K’. Can someone just, I don't see the chat. Can someone just tell me what it says or maybe I'll try to

**Wil Hardman** Yeah I can try. I can try, Shiri, ‘knock’, ’kill’, ‘kite’, ‘knowledge’, ‘knee’, ’kick’, ‘kind’, and then ‘knee’ again, ‘kayak’, ’knee’ again, ‘kisses’, ‘knackered’, ‘kilo’...

**Shiri Lev-Ari** OK, that’s good. So that's obvious that you can come up with many such words. I'm now going to ask you to try to come up with as many words as you can where the third letter is ‘K’. If you can read them out to me.

I think you’re muted.

**Wil Hardman** Yes, you've got to ‘acknowledge’, ‘joke’, ‘make’, ‘like’, ‘bike’, ‘bike’, ‘bake’, ‘poke’, ‘acknowledge’, ‘mocktail’, ‘make’, ‘take’, ‘poke’, ‘puke’.

**Shiri Lev-Ari** We’re actually doing quite well on that. And now I want you to just to answer the question, which is more common, words that start with a ‘K’, or whose third letter is a ‘K’. If you think it's words that start with a ‘K’ please write ‘1’. If you think it's words with third letter ‘K’, please write ‘3’. Do we see one or three?

**Wil Hardman** They started off with mostly ‘1’ and then now people are going towards ‘3s’.

**Shiri Lev-Ari** OK, yeah, OK. So you're saying it's mixed?

**Wil Hardman** Yeah, mixed, I would say, yeah.

**Shiri Lev-Ari** OK, that's OK. The demonstration didn't go that well, but I don't know. I think many of you might have known that this is, of course, not my original demonstration. This is taken from Tversky and Kahneman who actually received the Nobel Prize for this. This is part of bounded rationality. And what I showed you here is the availability. So what is the availability heuristic? So basically, usually people find it much, much, much easier to come up with words that start with A ‘K’ than to come up with words whose third letter is ‘K’. And then if you ask them to estimate, which is more common, they rely on the fact that it was easy to retrieve words that start with a ‘K’, but hard to retrieve words with third letter ‘K’. And therefore they infer from the fact that it was easier to retrieve words that start with a ‘K’, they say that, they thought they are more common. So this is availability heuristic. You rely on ease of retrieval or ease of processing to basically assess relative frequency. Technically, in English, actually words with third letters ‘K’ are way more common than ones who start with a ‘K’, but usually when people like, But the way that we start information doesn't necessarily include the frequency. So in this case it goes wrong. But the reason people use this availability heuristic is because most times this works. So things that are more common, we tend to find it easier to recall them. So for most times this would be a useful heuristic that would lead to the correct response. Now, well, this is availability heuristic.

I'm now going to talk about processing fluency, which is actually quite similar. So just like we rely on ease of retrieval to make different judgements, such as how common something is, we also rely on the ease of processing to make different judgments.

Let's look at a few examples. First of all, the first one, I think of as physical, it makes sense. So if something is easier to process, people think that it was presented more clearly. They think it was presented for longer. If it’s sound, they think it was presented more loudly. I know this makes sense because if something IS presented for longer, It IS easier to process. If it's presented more clearly, it IS easier to process. So people make also the opposite connection to say, OK, easy things, so ease of processing. And this was an easy process, I'm going to assume that this would be correct. Now often this would be a correct inference. But actually, all the references I'm showing you here, are cases of misattribution. So ease of processing was manipulated in some other way that participants were not aware of, for example, priming. But if they made the wrong inferences, oh, it was easier to process, so it was probably presented …

But now, people make inferences from other things, not just about things like clarity or duration, but also about things such as how familiar something is. So they think that if something is easier to process they’ve probably seen it beforehand and there is a nice paper that talks about instant fame. By basically making names easier to process, people think that they're more likely to be celebrities. So again, this is a reasonable inference in the sense that usually things that we've experienced before are easier to process so people, think ‘I might have seen it before’ and it might be famous now. The problem starts getting I mean, all these things can be said for the most part they're beneficial, but it can lead to issues. The more interesting aspect comes when we start having evaluative judgments based on the ease of processing. So we actually tend to have positive associations and inferences for things that are easier to process and negative if they're not easy to process. So we like better things that are easier to process. We think they're prettier. And perhaps even more alarming, if you make something easier to process, people think it's more morally acceptable, they think it's safer.And we also believe more things that are easier to process. So I’m going to show you what we're going to focus today on is the fact that we believe more something that is easier to process. And I want to show you the studies to show that it's not me but what they did. It was charge. They basically showed people little known trivia facts that participants didn't know and asked them to just judge whether the facts were true or not. But what they did is they manipulated so that the facts appeared in different colours and also with different background colours, so that sometimes there was good colour contrast and sometimes there was colour contrast that makes it harder to read. Now, the facts were, of course, everything was randomised, so participants were counterbalanced. And so that means that the same fact for some participants, it appeared with good colour contrast and for others in not so good colour contrast. And what they found is that people thought that the facts were more likely to be true if they appeared in good colour-contrast compared to not so easy to read colour-contrast. I think that's the best and most direct evidence that we really had an issue before, the fact that the ease of processing influences truth judgment. Another study that doesn't show us direct evidence, but I quite like, looked at the aphorism. So things such as ‘Woes unite foes’ or ‘A fault confessed is half redressed’. So basically very short sentences that also rhyme. So in this study, colleagues really piloted everything beforehand to make sure that their students are unlikely to know these statements. And then what they did is, they gave these statements or modified versions of the statements that I'm going to show you in a second, to judge to what degree they agreed with the statements. Now, the modified version had the exact same meaning, but it always replaced one of the words with the synonym so that the word no longer rhymes. Sorry, the aphorism. So ‘Woes unite foes’ and ‘Woes unite enemies’ means precisely the same thing, except that the first one rhymes and the second one doesn't . ‘A fault confessed is half redressed’ and ‘A fault admitted is half redressed’ mean the same thing except that one of them rhymes and one of them doesn't. Of course, again, everything is counterbalanced so half of the people get the rhymes, so the other half the not rhyming. And again, they find that people agree with aphorisms more when they rhyme. Now, even though the study was about rhyming, the argument was that the reason rhyming led to greater agreement with the statements is that rhyming makes it easier to process them, and of course, ease of process leads to believing something more. So the same argument as in the prior study. Now, these are really interesting findings, but then it becomes quite alarming if you start thinking about the interactions between native and non-native speakers. So none-native speakers tend to have foreign accents. And I really should say that if someone learned a foreign language as an adult, it's almost impossible for them to not have a foreign accent. So it's not just something to work on and it will go away. It's really almost impossible to avoid if you are a late bilingual. And we know that, first of all, people sometimes just don't understand what someone says in a foreign accent. But more than that, what we find is that even when they fully understand what someone else says, it imposes a cognitive load. It is harder to understand. The process takes longer.

Now, if we say that people believe things less when they're harder to process, does that mean that people are going to believe information less if it's provided by a non-native speaker compared to a native speaker? So that was the study that we tried to do. So that study was conducted by Boaz Keysar. And I should say that this was done in the United States. And basically what we were trying to do is, first of all, we invited participants to the lab and told them this is a study on intuition in knowledge assessment. You're going to see trivia statements, some of them true, some of them false. We want to see how good you are telling whether something is true or false. We try to have little known trivia fact, such as ‘A giraffe can go without water longer than a camel can’.

Like I said, half of the statements were true, half of them false and what is needed is to rate how likely a statement is to be true on this continuous scale going from definitely false to definitely true. Now, we really wanted it not to be about prejudice, but really about the process. And so we did, well we did a couple of things to do that. The main thing that we did is that we really wanted to make sure that the speakers are just messengers. So we're not asking, do you believe that person, this person just reads aloud whatever the experimenter provided. So in that sense, you should not let prejudice influence your judgment. And the way we did that is that we told all participants, and when I say we, it's really the research assistants who are all native speakers of English. So what they did is they basically said, we ask all participants to come read aloud trivia facts to others, and then you're going to listen to the facts read by our participants and try to decide what’s true or not. So they understand that they're just messengers reading it aloud. We actually recorded them, but we never used it. We just deleted the recordings afterwards. OK, so let's just. And I also have to say, we also, to make it not too suspicious that there are so many non-native speakers, we also had like filler statements by more native speakers to just down the number of non-native speakers. So to give you an example of what the stimuli sounded like so like I said, little known trivia facts, it was read, it had nine versions, three native speakers, three non-native with a mild accent and three non-native speakers with a heavy accent. Here is one example. The native speaker, ‘A giraffe can go without water longer than a camel can’. A mildly accented speaker, ‘A giraffe can go without water longer than a camel can.’ and a heavily accented speaker, ‘A giraffe can go without water longer than a camel can’. Of course, we’ve known the speakers beforehand to see that what we think about mild and heavy accent is correct. So these are three of our speakers. And what we found is that we are unfortunately correct in our predictions, so people believed statements more if they heard them in the native accent compared to a foreign accent, and it didn't actually matter whether they have a heavy accent, whether, sorry, whether an foreign accent was mild or heavy. OK, so I should say, since that study, that study was actually conducted 12 years ago, it's been, and other people trying to study either replicative or do their own studies, some studies really found similar results.

And I want to already there's a question about that, they ask and, I have already responded to it, because this is not about prejudice, but just about the ease of processing. Yes, non-native speakers behave the same way. So if you want to look at what non-native speakers do, this study really looked at non-native speakers, because they also believe these statements more when they're in the native accent compared to non-native accent, which makes sense because non-native speakers find it just as hard to understand foreign accented speech unless it sounds like them. And in this case, the foreign accent was different from that. Actually, often non-native speakers find it even harder to understand other non-native speakers, so they demonstrate the same bias. Now, the other studies actually were quite different. So I should say they didn't try to control prejudice because what they actually cared about is lie detection. So they tried to say whether people can detect whether someone is lying. So they have people who tell the truth or lie. But about half of the people being native speaker and half of them non-native speakers, they wanted to see if people make better detections with native speakers. Some of them found that, yes, some of them found that, no. But in general, people are pretty bad with lie detection even when they're better. You just like, you know, they're still not…

It’s by chance. But what's important is that regardless of whether they find a difference between native and non-native speakers in the ability to tell whether they're lying, they did find that overall people tended to assume that when they hear native speakers, they were more likely to guess that they're telling the truth rather than lying, regardless of whether the native speakers were telling the truth or lying. In contrast, when the speaker was a non-native speaker, people were much more likely to think that the speaker was lying, regardless of whether they were telling the truth or lie. So people just, in general, even though that's not what they're looking at, they found that basically people always thought that the native speakers are more likely to be truth tellers compared to the

non-native speakers. I should also say, a couple of people who tried to replicate my study didn't manage to. There could be some methodological issues, but it's also not all talking, assuming why they like, why they did didn't work. The first thing that we want to do is replicate it, right, to see, can we replicate the findings and find it again. And one thing that we also want to see, so we try to make it about messengers, so we know that the effect is not about prejudice, but about fluency. But it would be nice to have a more direct evidence, that really, that the reason that people believe non-native speakers less is really, because they find it harder to process the speech rather than something else. And, it's also going to see, to try to see can we also reduce the bias, rather than just show that there is a bias. So that was the goal. When we try to think of, ok, how might we reduce the bias? The one thing that we know that really facilitates basically language processing is experience. So perhaps you already experienced it over the talk, over this talk. If you think about how easy or hard it is to understand me during the first five minutes of this study, compared to now, you might find that it's easier to understand me now rather than earlier. And that’s how it is. The more we hear someone, the easier we find it to understand their accent. Now, luckily, we don't have to just listen to the same person in order to become better at understanding them. There is also evidence that if you listen to several different accented speakers of the same accents, in this case, it was Chinese accented English, we better understand a new speaker with the same accent. And there's even evidence that if you listen to multiple foreign accents, that also makes us better understand normal foreign accents. OK, so the idea is that experience can help in this way and even generalize. OK, so we thought, ok, if experience can really reduce the difficulty of processing for an extended speech, would it also reduce the bias of believing non-native speakers less? So that was the goal of the study and this study was actually the master's thesis of Katarzyna Budoch-Grabka. So she did a master's in forensic psychology. She's actually at Essex police force where she was even back then, which relates to some of the stimuli, as you'll see in the second. But I think it was to, really have people, get people exposed to Polish accented speech or in the control condition, just British English. So basically nothing. Then have everyone listen to the statements, judge how likely they are to be true with the idea that exposure to the Polish accent should reduce the bias of people of believing the native speakers more than in this case, the Polish accented speakers and at the end, we also had some accent comprehension test to really see whether the reason that exposure reduced the bias is really because it of improved accent comprehension. OK, so I want to explain what the cover story was, because that would help us deal with things and also I should explain, I should say, originally we decided to do the study just before the pandemic started, and the idea was to have it with police personnel and then basically have to see whether we can basically reduce bias in the police personnel. So that was maybe, but then the pandemic happened. We realized we cannot actually recruit police personnel. They had multiple other things to deal with, we just used regular participants. But we had some of our stimuli still, these things like witness statements. So we wanted to just to explain to our participants why. So our cover story was that police personnel often are trained in how to better understand and evaluate statements made by victims and witnesses. In order to evaluate our training, you would like to compare police personnel's performance to the performance to the untrained general public. We would therefore ask you to listen to both police related and neutral statements and ask you questions about them. So that's why, I'm just explaining why they're listening to three witness statements, but then they're moving to previous statements. The other thing we wanted to explain is why they're going to hear some polish accented statements now, which might seem strange. So we said, according to most recent statistics, Poles are the biggest known non-UK-born population in the UK. Recent training courses include recordings of Polish immigrants to the UK. We will compare performance of police personnel and the general public using real training stimuli. The recordings you will listen to might therefore include several Polish speakers. So we really just kind of make them understand why there might be foreign accented speech without being too suspicious of that. OK, so that was idea. But, as I said, the main point is to get them exposed to the accents and then see how they are doing. So exposure stage, like I said, were witness testimonies. In the experimental condition, participants listened to eight different Polish-accented speakers, in the control condition to eight native speakers of British English. I'm just going to play a little bit of that so you get an idea of what it sounded like. ‘My name is Anna Cosco. I am thirty four years old and I live at 120 Boston Avenue in Colchester. I would like to report a crime which was committed last week, on Friday, 5th October twenty nineteen. I came back home from a night out to discover that someone had broken into my house via the back door. My TV was smashed, my laptop taken in my jewellery, which was hidden in a box in the bedroom upstairs was also gone. I checked with my neighbours, but no one saw anything like…’. OK, I'm not going to play the entire statement and so you can hear the range, here's another speaker. ‘I am Alexandra Novak and I live at the Victoria Road in Grace. On Saturday, the 14th of June 2019, I held a party in my garden. We had a barbecue and played music. Nothing too loud. Just have something in the Background while we are talking. Around six o'clock…’ OK, you got the idea. There are eight of these. The ones in British English were identical except for the names. And then just to make sure that people pay attention, we had comprehension questions afterwards. We were planning on excluding people who didn't answer them correctly, but they all answered them correctly. So that was that. Then we get to the actual trivia statements. So in this case, we actually used this big overlap between the statements and the ones from beforehand. We just made a few changes to make sure there's no reference to UK or Poland and to make the length more similar and things like that. But very similar to beforehand. We have two versions of each statement, one with a Polish accented speaker, one with a native speaker. Of course, one half of the people hear the native accent, the other half hears the Polish accent. And again, let me just maybe play maybe just one of them so you have an idea what it sounded like. ‘The cigarette lighter was invented before matches’. ‘The cigarette lighter was invented before the matches’, so people just hear, like I said, multiple speakers, again, multiple Polish speakers and multiple native speakers and just judge on a continuous scale ranging from completely false to completely true. How likely the statements are to be true? So what did we predict? First of all, we predicted that we could replicate the prior findings, that we expected people to believe statements more when they were said in a native accent compared to Polish acceptance speech. But we expected to find an interaction such that those who were exposed to A Polish accent in the first stage of the experiment, would show a smaller bias against when they were judging the truthfulness of the statements in the previous statements. So smaller differences between native and non-native speakers. So here's the finding. I know that people are often not quite used to density charts. Let me explain to you what the density, to understand what the densities are. So what you see on the X axis is the truth rating with zero completely false and, sorry, zero for definitely false and one hundred for definitely true. So the more it is to the right, the more it is true, judged to be true. Density shows how frequently something was chosen. What you see in pink is when the previous statement was read by a speaker of British English. When it is in turquoise is when it was read by a Polish accented speaker. And what you can see in the two panels is those who had originally been exposed to witness statements by Polish speakers versus the control condition. So first of all, I think it's quite clear that the pink and turquoise look really different. So when people listen to Polish accented speakers, it's because most of the time they think, you can see that there is like this really high peak around here, which is like, I don't know, ten, fifteen, around that. So they really think that the statements of the Polish speakers are likely to be not true. When they listen to the native British speakers, they're going to give them ratings that I can see over here around 70, 80, so they tend to think that they are true. So you already see a huge differences between ratings of the same statements when they hear them being read by native versus non-native speakers. What you can also see is that the difference between the pink and the turquoise is a little smaller when participants were first exposed to Polish accented speakers. So you can see that over here, the peak was really reduced when they were exposed. And in contrast, you can see more in high ratings of Polish speakers when there was Polish exposure compared to British. And when we did follow up, first of all, we found the interaction between the exposure to speakers was such that the difference between native and non-native speakers were smaller when there was Polish, when there was exposure to Polish accent compared to not. And the follow up really showed that the reason for the interaction is that the ratings of the Polish speakers increased when there was exposure to Polish accented speech. OK, so this is all very nice. And I mean, I don't think this is nice but I mean, because we actually replicated that people trust information less when heard from non-native speakers, but we can also see that exposure has the positive impact and can reduce the bias. It doesn't eliminate it, but it does reduce. Now, of course, one of the things that we also wanted to see is can we really find enough evidence that this is about fluency So in the sense that we have participants randomly assigned to get exposure or not. So that's some evidence that this is about the effect of exposure. But to really see what the exposure did to improve accent comprehension, we also looked at the accent comprehension that they had at the end. So that test participants listen to something said in Polish accented speech and they needed to transcribe it. And we basically coded how many of the content was or were correct. So the content words are nouns, verbs, adjectives, but not the prepositions and articles. And as you can see, there was a very large range in terms of how well participants understood the accents. So what we predicted is basically that exposure to Polish accented speech should lead to better performance in the accent comprehension task, like it should improve comprehension of the accent. And we also expected that, basically, the performance on the accent comprehension task would predict the reduction in bias against the Polish accented speakers in the previous statements. So first of all, to look at the performance on the accent comprehension task, these are the participants who were exposed to Polish accented speech. These are the ones in the control condition. As you can see, participants who had exposure to Polish had much, much, much, much higher performance in the actual comprehension compared to those in the control condition. Importantly, we also find that basically her comprehension score predicted the truth rating that they gave the Polish accented speakers, and that's because in the trivia task, we did a formal mediation test, we found that the majority of the effect of acts of exposure or manipulation on trivial ratings was really mediated by performance in the accent comprehension task. So really, the reason that exposure to Polish accented speech led people to show smaller bias against the Polish accented speakers is because now they found it easier to understand the accent. OK, so so far we've seen that people believe information less when it is delivered in a foreign accent. We see that effect is at least partly due to processing fluency.

I'm not saying that it couldn’t be prejudice and other things as well, but we can see that processing fluency itself plays a role independently of them. And therefore, we can see that if we try to increase processing fluency, we actually can reduce the bias. And I really focus over here on believing non-native speakers. But as I mentioned in the beginning, actually a lot of evaluative judgments that we make depending on processing fluency. And we shouldn't expect that believability should be any different from the other one. So this means that it's quite possible that people would also show, for example, less liking of non-native speaker just because people tend to like less things that are harder to process. So we can think that all the other factors they had beforehand might have an effect. I actually right now have a student in forensic psychology who looks at judgment of recklessness. When you listen to native versus non-native speakers in court, for example, just because we know that things that are easier to process seem safer. So it might cover all that. OK. But as you probably noticed, yes, we reduced the bias, but it was still pretty big even after exposure. So why is that? Well, first of all, I should say that the exposure was like 10 minutes, so we can think that potentially longer exposure would lead to greater reduction. So that could be one reason. Another reason is that we didn’t try to control for prejudice. So participants were randomly assigned to one condition or the other, and so we shouldn't expect participants in one condition to be more prejudiced than the other one. But it could be that participants were also prejudiced and therefore we could reduce the bias because of processing fluency, but we still have bias because of prejudice. And in that case, you can think about the way that if we think that reducing persistence, sorry increasing processing fluency by exposing people to foreign accents is the way to go. And one way to do that is by having diverse environments such as diverse working environments, then diversity actually also leads to reduction of prejudice. So we know that from conflict theory. So under the right conditions, interactions can…-so in this this case it basically means that creating diverse workplaces can achieve two goals at the same time: It will both reduce prejudice and it will increase processing speed or reduce bias that is independent of prejudice. So it can really be a win win situation. OK, can I know how I'm doing with time?

**Ulrike Bavendiek** I think you got a couple of minutes, but we can move on to questions as well. Whatever you prefer.

**Shiri Lev-Ari** Oh, I only have a couple of minutes. OK, so I will not talk about our last study that I was planning on talking about. Let me just say. No, let me actually, I want to have actually the introduction instead of the study, so I just want to so basically diverse work have all the positive effects that I just talked about in terms of reducing bias and reducing prejudice. Or I just want to say that they actually also lead to improvement in communication skills. Just to give you a couple of reasons of how perspective taking, this is something that sometimes surprises people, but people are actually better at perspective taking with less stimuli. So first of all, people tend to self project to eei8uyuyytyrrttttttt5#hgh;/.\similar people more than non-similar, ones, even when it's completely unrelated. So, for example, in this study, people who are thirsty needed to judge to what degree someone else is thirsty. And if the other person had the same political opinion they were more likely to think that they were also thirsty like them. Even though, of course, that similarity has nothing to do in terms of what they're judging. But like I said, people project more towards similarities. We also have evidence that people are better at perspective taking with less familiar people. So they're better at perspective taking with strangers compared to with friends, which is quite counterintuitive to many people. And if, for example, you give people believe that, for example, this was done in Germany and it was Germans having to talk either about another German or about a Turkish individual, but everything was exactly the same, except for the person looking with the Turkish or German name and just image. But other than that, the entire story was the same. People were actually better to talk about the Turkish individual. And they think that in general, because it is the kind of people who are similar to us, to be like us in other things and to have the same knowledge, that we don't bother taking their perspective. Once we need to interact with less similar others, it makes them more aware of the fact that there might also be differences in knowledge and that encourages us to take a perspective, which is why we are actually better at perspective taking really with less similar others. So that means that being involved in a diverse environment can also actually encourage perspective and improve it. Another way that diverse environments can really be useful is if we think about accommodation. So when people talk, they become more similar to each other in the way they talk. So people become more similar, for example, in their speech rates, the more they talk and in the pitch, so how high or low they speak or in how many pauses they have, or the duration of the pauses or vocabulary choices, grammatical choices, even body language. So really, people, as the more they talk, you see throughout the interaction, they become more similar. That means that if you are going to talk to many people that are quite different from each other, you're going to have to keep on accommodating and each time becoming similar to a different style. So you're going to vary your behaviour more. Now, we also accommodate to the needs of different people. So we talk differently to children compared to adults. We also talk differently to non-native speakers. We talk differently to people who have different knowledge. Again, if you're going to have a diverse audience, or interaction partners, every time, you're going to have to adapt to them. So we're going to talk differently. And this is actually good because we know that basically variability in what we do actually improves learning. So we know it from other learning, think producing variability to our own behaviour makes us become better. So that means that if we actually regularly interact with diverse crowd, you should become better communicators. Now, I have a few studies that show this kind of thing. I don't have time to mention them, but I'll be happy to give you information about all the different evidence that really shows how diverse interactions can really lead to better communication skills, both for expressive communication but also for just understanding others. So people with larger and more diverse social network have better, for example, speech perception and understand better things like product reviews. They can predict better what someone is going to say and so forth. So to summarize, we see even people who are not prejudiced against non-native speakers much or biases against them because of the difficulty processing for an accent. We can see that we can reduce the bias by facilitating the processing and that exposure can do that. So basically having something such as diverse environments can really lead people to become better at processing for an extended speech and therefore showing smaller biases against non-native speakers. And I didn't really have much time to talk about it. But in general, diverse environments will have multiple other benefits in addition to reducing the, facilitating and processing of foreign accents can also do things like reduce prejudice or improve communications. And at this point, I would like to thank you for your attention and also just mention my collaborators on the studies.

Thank you.