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GUEST NAME: PROFESSOR HEIDI PROZESKY – CREST – THE CENTRE FOR RESEARCH ON EVALUATION, SCIENCE AND TECHNOLOGY – UNIVERSITY OF STELLENBOSCH

SPEAKER	TRANSCRIPTION
DR. MALKA	Hello, I'm Dr. Amaleya Goneos-Malka, welcome to 'Womanity– Women in Unity'. The show that celebrates prominent and ordinary African Women's milestone achievements in their struggles for liberation, self-emancipation, human rights, democracy, racism, socio-economic class division and gender based violence.
DR. MALKA	Joining us on the line today from South Africa, in keeping with our theme of Women in Science in Africa, is Professor Heidi Prozesky from CREST, the Centre for Research on Evaluation, Science and Technology, located at the University of Stellenbosch in South Africa. CREST also holds the DSI-NRF Centre of Excellence in Scientometrics and the STI Policy and Professor Prozesky is also a research member of the Centre of Excellence. Welcome to the show!
PROFESSOR PROZESKY	Thank you very much and thank you for the opportunity and hello to all your listeners.
DR. MALKA	Prof Prozesky we have currently been doing a series that focuses on women in science, where we have spoken to successful material scientists, physicists, chemists, environmentalists from Nigeria, Egypt, Tanzania and South Africa. When I started the series I was struck by the under-representation of women in scientific disciplines, for example there was a UNESCO 2017 study which indicated that only 28% of researchers worldwide are women. Scientists are, for me, important change agents who innovate, create knowledge, they are mindful of sustainable development; in your research you have looked at not only the next generation of young scientists in Africa, but also a gender perspective of the types of challenges faced by female scientists on the continent. You surveyed approximately five thousand respondents from thirty countries in Africa; please tell us about some of the key issues that are holding women back?
PROFESSOR PROZESKY	Yes, thank you. We found that women were clearly less likely than men to have travelled abroad for training and for work and to access the mobility that is so important in a scientific career. So, the first point that we found is that the lack of mobility amongst women scientists was very clear to us when we compared with their male colleagues. Women also produce less outputs than men and we measured these quite broadly, not just articles in journals but all the way through to patents and other forms of communication of findings. Women were also consistently more likely to indicate that they had never collaborated with other researchers. These are not the results that are only applicable to Africa though and we find this across the globe as well. Interestingly, women were not more challenged than men by the variety of career related issues that we presented them with, but there was one that stood out; balancing work and family, which the majority of women, regardless or region experience, even past their intensive childbearing and childrearing years. So scholarships for PhD training they sometimes have to forgo because they are during maternity leave for instance, those they can't access anymore when they come back because the age limit is keeping them from applying for these funding opportunities. So that is in a nutshell what the negatives were, I want to just mention though, that the 28% that UNESCO reports

	is lower than South Africa and a few other African countries.
DR. MALKA	So that is a positive note.
PROFESSOR PROZESKY	That is a positive. In South Africa we almost at parity in the higher education sector, when we look at women that are in positions in which they need to do research and teach, so they are at 48% at the moment. Unfortunately they only produce about a third of the publication outputs, so we are currently also looking at that gap between the participation of women in employment as researchers and their productivity as researchers.
DR. MALKA	You mentioned South Africa is getting things right in terms of parity from an employment point of view but the challenge is that the outputs, the productivity are not on par; which other countries are getting things right and what are they doing?
PROFESSOR PROZESKY	It is a bit difficult to talk about the African countries because we looked at a continent-wide description, we didn't really compare countries with each other but I did compare regions in one of my analysis and it showed that North African women scientists have experienced more and/or greater challenges than women in the other regions, especially when compared to women in the Southern African region. Some countries though such as Uganda, are considered more gender progressive than others and that does have an impact on the women scientists' experiences, others also in the literature are shown to be not a very good place to be, one of them being Tunisia. In that country academic women seem to have internalised also the traditional values that define gender roles and these continue to prevail in Tunisian society and are even on the increase with the rise of Islamism. So it depends, but it seems like Southern Africa and to an extent Western Africa is doing quite well. Worldwide we have always looked towards some European countries for their gender progressive policies in general when it comes to maternity leave, paternity leave and Canada as well, New Zealand, so it depends, I suppose it depends on the leadership in a country. South Africa has got progressive policies as well, but I think I will tell you a little bit later about the problems that even these kinds of policies can create for women if the whole science system doesn't also take into account their specific responsibilities at home. These responsibilities are not a problem that the science system can necessarily address, it goes much deeper than that, it goes to the family level, it goes to socialisation, the way that women see themselves, vis-à-vis, men.
	AD BREAK
DR. MALKA	Today we're talking to Professor Heidi Prozesky from CREST at the University of Stellenbosch in South Africa. We would love to receive your comments on Twitter: @WomanityTalk.
DR. MALKA	One of my takeouts from what you've just said that certainly has an impact is the, let's call it the degree of gender progression, when you talk about the differences that you observed in the scientific space between the Northern sector of Africa versus the Southern sector of Africa as well as West Africa, in environments and countries where we see that they are more gender progressive, where women have got more opportunities in general, you are seeing more advances within specific disciplines. So the, let's say the country gender dynamics have a ripple effect on what happens to women in their societies.
PROFESSOR PROZESKY	Yes, I think there is definitely a link between the way that a society values its women and the opportunities that women have and to not only be a mother, but to also be a working mother if she decides to. The role of fathers in the family, the way that is construed, these are all important

	<p>issues. I also have to mention that we find that if we research women in science, they don't really tell us often that their children or their marriages are keeping them from doing research, but what we need to keep in mind is that we are studying the successful women who have overcome these barriers, who have managed to garner support systems, etcetera. So, we always have to keep in mind that in a survey such as the one that we did, we studied the already successful women and I think it is very important that we sometimes change our focus to the women who didn't quite make it in academia, the ones who leaked out of the pipeline, this is a metaphor that is very often used, were the ones who want to return after a break or after a time in industry, these are the women that we should focus on because I think they are the most challenged. I am always mindful of the fact that we are trying to find the problems amongst the women who are not really experiencing those problems as intensely. It is very difficult to find a woman who has leaked out of the pipeline after she has left the university that trained her.</p>
DR. MALKA	<p>What do you think needs to happen or shift or change to (a) stop that leaky pipeline or (b) create opportunities for people who have exited, say it's that they have gone on to have children or they have had to attend to a family member, that some event has forced them to go out of the system but now that they've overcome that event they want to re-enter the system but are confronted by barriers?</p>
PROFESSOR PROZESKY	<p>I think there is a need to rethink the whole academic reward system, the way in which people are evaluated for promotion and for jobs. This has started happening in some European countries where there is increasingly a call to move away from a hyper-competitive science system that quantifies performance as the very narrow productivity of journal articles. So we are seeing a move away from that, which is very beneficial to women, because they do not function very well in hyper-competitive situations, for various reasons. I am not a great fan of the arguments of socialisation and that women lack self-confidence because of socialisation, but the research does seem to show that women are not comfortable in situations where they have to be very aggressive and hyper-competitive. So there has been, for instance, recently twenty-four women that wrote a wonderful article, it was an essay in Public Library of Science (PLOS), a very good journal, and they argued very convincingly on how discriminatory the current reward system in science across the world is. So that would be one solution that one can think about, but it will require a commitment from the highest levels of the science system, maybe in South Africa the deans and rectors of universities, but it would also require that we take responsibility for the way that we socialise our next generation of girls at home, we have to rethink our relationships with our partners. We cannot keep on maintaining the gender roles that were maintained up until recently, those gender roles are not conducive to diversity in science; they are definitely a contributing factor to the leaky pipeline. So one could say for instance, well then we just put childcare services into universities, To a certain extent that might address the problem, I would definitely agree that it is a good idea, but women sometimes just want to take care of their children the way that they want to. A longer maternity leave also has an interesting effect, we have seen that even in countries where the maternity is very, very long and under the paternity leave, most scientists don't take that leave because they are worried that they will run behind with their projects and it would look like they weren't as competitive as they could be, as productive as they could be. Without context as to why they left, without taking that into account, they will lose funding, they will not be as successful in the next</p>

	funding application and they know that, so the point is that you can have at a country level, wonderful maternity leave policies, but if the science system still operates as if all scientists are male with wives that look after the children, then you are not going to make any difference.
DR. MALKA	Re-thinking systems I think has been an undercurrent to a lot of the work that I have been exploring over the last few months and sure, it certainly has been brought on by issues of COVID, but even thinking now, if I reflect on our constitution from a South African perspective, on how that is regarded as being one of the most progressive constitutions in the world, it came about because there was a conscious effort to change things and not just cobble together something but rethink the environment; where we are now, where we want to go to and I can't help but think that maybe periodically we need to be doing those types of innovations of systems in different disciplines so that they are reflective of the needs of the world and society as it is today and mapping ahead for the future, instead of sticking to these dated policies and rhetoric.
PROFESSOR PROZESKY	Oh absolutely, but I have seen in the thirty years that I have been in academia that things have changed quite a lot for the positive and there is now increasingly also research that shows the benefits of having diversity within research teams, gender diversity and other forms of diversity, it has been clearly shown to be related to more innovative solutions and research, so we need more of that kind of research to also allay the fears that we are going to lose some kind of quality if we start adapting to the fact that half of the people that are potentially scientists are women and they have different careers and different lives from what men have.
DR. MALKA	I would imagine that a lot of your findings would apply equally to other sectors of society to help women advance their careers.
PROFESSOR PROZESKY	I would be a little bit hesitant, the institution of science is very different from other institutions, such as education, so talking all about teachers for instance or such as health, talking about medical practitioners, the expectations and the reward systems and work arrangements are different, but again if I can refer to research that has been done, what we do find is that women scientists are under more pressure than women doctors that have got their own practice. If we do try to apply these findings we just have to be mindful of the fact that there are differences, there are differences in when the most problematic time is when women tend to have the most stress, but ja I think we could apply these findings to wherever there is an assumption that we all have wives at home and that somebody else is looking after the children. I think in any profession, women that have to deal with that assumption, that they should be like men, we would apply the same arguments as those that I have given so far.
DR. MALKA	And I suppose looking at different circumstances this is where we would almost look at that argument of equality versus equity, where you are giving people the right tools that they need at the right time, as opposed to just giving a blanket set of opportunities, because different factors are going to impact on different people in different ways.
	AD BREAK
DR. MALKA	Today we're talking to Professor Heidi Prozesky from CREST at the University of Stellenbosch in South Africa. We would love to receive your comments on Twitter: @WomanityTalk.
DR. MALKA	One area that we often look at in this programme is about building female leadership capacity, it is important for the future women in Africa and across the entire world, but there are very few women I find in academic leadership and I use academic leadership in this context because that is the environment that you find yourself in currently. In your opinion, what do you think needs

	to happen to ensure more women make it to the top?
PROFESSOR PROZESKY	<p>I think we need to be clear about what we define as the problem and why. Maybe I could just also refer to my most recent project; it shows that women in academic engineering are on par with their male colleagues in terms of research output. Now this goes against the common assumption that the biggest problem that we have is women in academic engineering. We also found in our previous project that women in that field did as well as men in terms of obtaining funding. So the women that are already working as academics in engineering do not need fixing, what needs fixing is the fact that they constitute only 20% of academics in that field and then it becomes more and more difficult for them to become professors, for various reasons, but it is just also a basic mathematical issue. What needs fixing is the fact that they are the minority that decided that they could do maths; that engineering was for them. So I would say one needs to already start at school. The choices girls make in grade nine for instance, that exclude them from further studies in certain fields, these are very important, but if you can stop that choice and that is a very strange idea, but if like some countries do in Asia, if you make sure that everybody goes on with a certain level of maths all the way through and they don't have the choice to stop before matric, then you are going to increase your pool that you can recruit and retain. One has to be careful though not to try to fix the women or to only support women at the individual level. In the past ten years there has been a shift in the European policy, from fixing the women towards fixing the system. The focus needs to be shifted from the individual level where a woman's for instance professional skills are promoted to modifications of the entire academic and research system, which currently is not gender neutral, we know that, it is masculine, it is egocentric and that is where half the problems come from. This brings us back to that issue of the maternity leave, as I said, if you don't change the academic system as well as the policies on the national level, you're not going to change much. So, my summary is try find out first, empirically, where the actual problem lies and then think about the pipeline all the way back to school, because when we start getting that crucial number of girls coming into engineering, it has a knock-on effect, they become mentors for the next group of girls that come in, the girls see that there are other girls, there are women in engineering, but eventually some people say you have fields that go through a tipping point, become so feminised that the men leave, because in some societies like ours, the more feminised the field is, the less people pay those people in those fields and you find that men leave.</p>
DR. MALKA	<p>Well I think there's two fixes there that need to happen; one from a point of view of salary and income that regardless of your gender, I really think that your output should be remunerated fairly, but the second point that I'd like to focus on a bit more here is the issue of getting people into the pipeline at the right time and I can't tell you how many conversations I have had with women where they said that the subjects that they took at school had such an impact on the way that their lives turned out and the influence of certain role models in their lives to help them make the right subject matter choices, that if they hadn't listened to them or if they hadn't been nudged appropriately, sometimes with a bit of tough love, they could have had a completely different outlook on life and certainly not be where they are today. So what types of career opportunities outside of academia do you perceive as being available for women who study science?</p>
PROFESSOR PROZESKY	<p>That is a very good question, as an academic I am not quite aware of exactly where women could these days find work, because I find that most of them end up in academia and globally women are over-represented</p>

	<p>among the doctorates who pursue this traditional academic career path by becoming lecturers and then eventually professors, while men are again over-represented among those who enter business or industry, we still don't know why that is the case. What is problematic is that jobs in academia are becoming increasingly scarce and the pool of PhDs that are competing for these jobs is becoming larger. So I've just been asked to join an expert group on a global project on career options for doctoral and post doctoral scientists outside of academia, so it is becoming an issue of global concern that we are only now starting to understand and address, so we really have to think again about how we are training our doctoral and even master's students. We are academics, we tend to train them to become the next generation of academics, but we have to start realising that they are not going to necessarily be in academia, actually the minority of them are going to end up in academia, especially in feminised fields such as sociology. So what do we do, we need to first of all allow them to make more informed career choices, so what you earlier mentioned is incredibly important, from school but also when we are training students in the post graduate years, to talk to them about career choices. We need to also, I would need to also teach myself about what opportunities are out there, but while the students are at the university, these options aren't always clear to them. The idea of self-employment as a consultant is these days quite interesting, monitoring and evaluation studies is an option, another sort of this skill is science communication, there are many other options than lecturing. So it is a mixed bag what I have given you now, not really a very direct answer, where can women scientists end up; they will find a job, I do believe.</p>
DR. MALKA	<p>I suppose this is all about exposure and presenting different opportunities and lifestyle choices and helping people embrace diversity and knowing that long gone I suppose are the days where you had this linear career and generally stayed in one environment, that we now have squiggly lines between different paths in our careers and sometimes doing complete career changes.</p>
PROFESSOR PROZESKY	<p>Yes, the new thinking today is to move away from the idea of a career path as linear and the metaphor that is used is not the pipeline anymore, but more of rivulets that branch off, come back to the main river again, so it is interesting how the metaphors in the literature are also becoming more mindful of the fact that careers are not that linear.</p>
AD BREAK	
DR. MALKA	<p>Today we're talking to Professor Heidi Prozesky from CREST at the University of Stellenbosch in South Africa. We would love to receive your comments on Twitter: @WomanityTalk.</p>
DR. MALKA	<p>Prof Prozesky we've spoken about some of the challenges that women experience within the workforce and unfortunately that's not the only area that women experience discrimination. On the 25th of November there is the Annual Global Campaign of 16 Days of Activism Against Gender Based Violence; the fact that we have this campaign is just another reminder that we do not live in an equal society and that women's rights are still undermined. What do you think about these types of campaigns to help drive change in a positive direction for women?</p>
PROFESSOR PROZESKY	<p>Obviously I am highly supportive of such campaigns, but I think we need to really target the problem, which is not the women, so we need to understand that the problem lies elsewhere. It is the strangest reaction that we sometimes have to problems that are the result of gender issues. We try to fix the women where we should actually try to fix the men, because that is where the problem lies.</p>
DR. MALKA	<p>You are so right; it is always taken as this reflection back to the person that the</p>

	action has been happening to and not to the perpetrator.
PROFESSOR PROZESKY	Absolutely, yes, and that could be my main point on that.
DR. MALKA	In your opinion what do you think needs to be done to ensure women have a better future, if you had a crystal ball and we lived in an ideal world?
PROFESSOR PROZESKY	Well we will all have to become more sensitive to the way in which we are socialised to behave as women and men towards each other and the next generation just has to be socialised differently. So as mothers and fathers we need to be I think a lot more aware of gender and I think it is happening, well I know it is happening, I can see the changes from my mother’s generation where she didn’t have the choices that I had. I can see the generation that I am training now, they have much more than I had when I was being trained, in terms of opportunities. So we know that we are on the right path and the decisions that we have been making are the right ones, we should as parents, but also at schools, we should be incredibly sensitive to gender relations. Conservative views on a woman’s role in society should become unacceptable in our society and I think a lot of the other issues will then also become solved. We need to think carefully about the way science has developed, I mean hyper-competitive social institutions where overwork and a narrow definition of output is rewarded, is not helpful for anyone. If there is one positive that came out of the pandemic it is that these kinds of approaches to work have been rethought and this will be very positive for women as well. So I find these are exciting times, we can see movements in other countries, we can look towards them, adapt what they have tried where it worked and adapt it to our context. So yes, let’s try and promote inclusivity, we know it works, we know it creates diversity, but we need to start at the home and at the schools.
DR. MALKA	Thanks for sharing those points. We’re coming towards the end of the show now and one question that I ask all my guests relates to their personal journey and it’s about asking about some of the factors that they feel have contributed to their success. So in your view what would you say have been some of the key drivers of your success?
PROFESSOR PROZESKY	My father was a first generation academic and he made a very, well, he made a fantastic success of his academic career, he was incredibly passionate about knowledge, about learning and about teaching, so he taught for more than thirty years at university and he did research and that is the environment in which I grew up. My mother was a homemaker but she also did very well in matric and I think sometimes she was a little bit frustrated that she couldn’t follow her passion, which was also to get a degree at the university. So the combination of these two factors led me to be very passionate about academia, about what it means, the place, the idea and at the same time to be very mindful of the fact that I had opportunities that my mother didn’t have, which led me to be passionate also about the topic that I eventually decided to pursue and that was gender differences in the publication productivity of men and women, because I couldn’t understand this gap, the fact that women published less than men, because it definitely wasn’t a lack of ability, that I was sure of. We’re still trying to solve this problem, I have returned back to it, by the way it is referred to as the productivity puzzle and I am very passionate about it. The second person that was a very very important person in my career was my mentor, at that stage there weren’t any females, so it was a male mentor but he was a fantastic mentor. Right at the beginning of my undergraduate training when I realised that I was very very excited about doing social research, he also identified that in me and he groomed me to

	<p>become a lecturer and I could maintain that focus and the fact that I kept on training myself and training others in research methods has helped me so much and if it wasn't for this person who believed in me and helped me for ten/fifteen years to become who I eventually became, well, I would probably not be where I am now. So I am very grateful, so is incredibly important to have mentors, but we have to, as women especially, we have to take on that responsibility and mentor the next generation, it is not easy to become a scientist, it is competitive, there is a lot of critique, one has to be very very tough, but if you have a good mentor that can show you that they've made it and they're okay, then it makes a difference.</p>
DR. MALKA	<p>Mentorships, role models, sponsorships are all really critical in terms of I think (a) it's about being able to give back to the next generation, but (b) make their journey so much easier.</p>
PROFESSOR PROZESKY	<p>Oh absolutely, it does make the journey easier. One just has to be a little bit careful, there are in some fields very few women and overloading them with all the mentoring or the so-called housework as well in a department is something that we also need to be mindful of, so mentoring has to be divided by men and women but I think it's quite important that we understand the link between mentoring and career outcomes. One of my PhD students just submitted, two days ago, her PhD on that exact topic and we showed very convincingly, statistically, how those young women scientists in Africa who received mentoring on fundraising, eventually also were much more successful for instance, in raising funding. Those who received mentoring in writing and in methodology were much more successful eventually also in publishing their research, so there is a very strong case to be made for mentoring at higher education institutions, and fortunately most of our institutions here in South Africa have recognised this and the government as well and there are some very interesting policies and initiatives that have recently been launched.</p>
DR. MALKA	<p>You've got the proof points, you've demonstrated the correlations and I really hope that mentoring does take off because it is so vital to help people advance. Lastly, as we close out our conversation today, please could you use this platform to convey a few words of motivation or encouragement that you'd like to pass onto girls and women on the continent who are listening to us?</p>
PROFESSOR PROZESKY	<p>I would say get to know yourself, identify your passions and strengths early on and stick to your goals. Choose your life partner well, it is important and I think as a woman one should remember that it will probably still be more difficult for you to reach your goals than it would be for male colleagues that don't have the same responsibilities. You will be running the hundred metre hurdles while they are running the hundred metre sprint for instance. Measure yourself against your own goals. That would be my suggestion. Thank you.</p>
DR. MALKA	<p>What a great metaphor; hurdles versus sprinting. It's been such a pleasure having you on the show and hearing your insights into this viewpoint regarding women in the workspace and some of the barriers and also importantly the opportunities that are open to clear those paths, so thank you very much for joining us.</p>
PROFESSOR PROZESKY	<p>Thank you for having me, it was a pleasure.</p>
DR. MALKA	<p>PROGRAMME END</p>