Transcript

Sara
Hello and welcome to It's Just Research, a podcast about all the exciting scholarship and writing done at the School of Education, Communication & Society at Kings College London. This is a space to discuss what we do when we investigate the world Podcast about research with researchers. I'm Sara Black, a lecturer at the school, which we call ECS for short.

Liam
And I'm Liam Cini O'Dwyer, a PhD candidate in ECS. In this episode we're joined by Dr Arthur Galamba, who works in our Centre for Research and Education in Society, Technology, Engineering and Mathematics. We call it CRESTEM for short. Welcome to It's Just Research. Now Arthur, our podcast name is on point today. The way we pun on the word just and its double meaning. Trying to make research not only approachable and accessible, but also about social justice. Your work is very strongly focused on issues of justice. Please tell us about your research area and what drew you into it.

Arthur
Hi. Hello, everyone. It's a pleasure to be here today with you. Well, that's an interesting question. I think I have always been interested in social justice. My PhD, I studied a Portuguese educator who was seen as a humanistic person, and he did some work, particularly in his poetry that touched on social justice, but that wasn't my initial original interest in his work. But with time, particularly with some of the changes in the political scenario in my home country where I was born in Brazil, particularly with the election of the last president, called Jair Bolsonaro, I decided to change the focus of my research to give more time and energy and thinking into how to work against fascism. That's how I became more and more interested in working for social justice.

Sara
That's really interesting. So some kind of a political context in your home brought into your own science education and focus on politics. That's not a combination most people tend to put together, people tend to think of science as quite far away from politics. But would you say to somebody who said "don't put politics in the science classroom" What would your response be to that?

Arthur
No, yeah, that's an interesting question because it's very important to make clear about my understanding of education. And by starting saying that it's impossible to have apolitical education, all education is political. All education is ideological. I mean, think about curriculum and what the curriculum aims at. There is lots of hidden ideologies in that curriculum. And I mean, when I started looking into more detail of fascist government and fascist ideology and reading more about it because I wanted to understand more about what sort of world my home country was entering into. I realised actually that how much science during the time, countries like Portugal, Spain, Italy and obviously Germany they suffered because of fascist government in power. And what I can tell you is that to a large extent a very similar issue happened to science, in Brazil during that time that I was writing and researching about fascism and education, so the fascist government, they are very interested in school curriculum. One of the first things they will try to change is the curriculum, because that's where you really bake people. You can lure people to think in a certain way or to prevent them from reading and learning about works that are very liberating. So the impact is very big. So I think everyone should be very concerned about politics and education and about, you know, repressive ideologies such as fascism.

Sara

I mean, I think it's really interesting because my country, South Africa, has had a very long history of ethno nationalism and the curriculum in the system was a really important piece of that. So I mean, I can hear what you're saying it makes a lot of sense

Liam
And I'm really interested what role do you think science and science education can play in combating forms of extremely discriminatory and dehumanising politics?

Arthur
So excellent question, because normally when you think about science and science education, let me tell you, I taught physics for more than 10 years in schools. And the reason I decided to teach physics is because I simply loved physics. I always loved it, and I still love it. Conveying my passion for physics has always been very important to my teaching. It fulfills me. I'm sure the students would appreciate that. as well. But during the time I was in school, I wasn't too aware about the relationship. Between physics or science more broadly, and politics, so the relationship between them is long standing and has always been like looking back to the last century again about the impact, for example. And I think there are many interesting works on the science that was developed during the Nazis. And how they affected the production of science and how they've managed somehow to get the scientific results that interest them only. And the scientific results. that didn't interest them, they just ignored. And you know they didn't use or accept as as a good result. So they manipulate, they lie. They're not interested in science as like uncovering the truth. If they can say something like that. Not getting down into the philosophical discussion about truth or not, I'm just. I'm just trying to say that they're not interested in in real science. They are interested only in in perpetuating the ideology. Your question about how we can use science to fight... Well, part of my research is looking into, and I drew in many other researchers. It's looking into how things like homophobia, misogyny or or racism is conveyed in science textbooks, for example. And there is lots of evidence that actually the science perpetuates some of the fascist ideology, without realising that perhaps. I'm not suggesting that write those textbooks are doing that with any ill intentions, but ultimately it might be just a reproduction of something that has long history and it it still exists today. So we need to become more aware of how these ideologies. are perhaps subconsciously communicated in those science lessons, and we need to address them, to change, to remove and to, yeah.

Sara
I mean, it's so interesting listening to you talk about the history of science and that it's such a social practice because there's been, I think, quite a difference between how scientists do science and how the public understands science. And the practice of science is quite error prone and messy. Yes, whereas people think it's always sure and and gives very clean answers. I mean, how would you in your science classes, get students to understand the practice of science as this messy historically contested sort of practice that people do?

Arthur
Right. Very interesting question, because I think there is a general misconception when people talk, think about science. As the science that used to be done by those big names back in the enlightenment people like Galileo, Kepler, Newton, you know, people who were completely disinterested in having science as their main profession. But normally they're very wealthy people who are very exotic people are interested in. science, very intelligent people as well, but didn't, didn't, for example, need funding or as we need today to do science. And in the 20th century, 21st century science is a highly social activity. We are constantly discussing our findings with research that we don't even know who they are. We need to apply for funding, and some of those funding are financed by big corporations. We've got, like, certain interest, like, say... Oil company, for example, or even tobacco company, or people do research that you know, paid by those institutions and in a way there is an interest in certain findings, but not the interest in other type of findings, for example.

And in the end if the publications are will be more or less accepted depending a lot about even things like whether your work cites someone else's work, or if you're part of this school of thought or not. So there is a lot of politics in scientific work as well, I could go on to say a little bit more about it in terms of, you know, there is something called parachute Science, which is one of the things that I think is really important. that I addressed in that paper and the colonial scientific education to combat science for domination, that we talk about parachute science, which is that it's still the same colonial thinking that, you know, researchers from very wealthy countries, they can just liaise and discuss with researchers from other countries, particularly less wealthy countries or pretty poor countries, when they seem to be in partnership with them, but actually they go there, they find out what's going on, and sometimes there is no even acknowledgement about all the work that those local people or local researchers have provided to the work. So it's very complicated because those who come from countries where they got all the funding and they know the people who say, are the editors of journals. They've got the power about how to say what to say, whether they're going to be the first, second, or third or etcetera, etcetera. So it's a highly social and political activity. It's not just like black and white kind of science that many people will be thinking about.

Liam
So we ask each guest to send over three papers to help us deep dive into our episodes. So I'm really interested that you've mentioned decolonization because it's become a very common term these days, but people mean different things by it. So what does the term mean to you and how is it rooted in your research? And as your role as director of PGCE Science.

Arthur
Yeah, obviously, you know that this is a very difficult question because people have got different interpretations of what decolonization is. I believe that as I'm not from Europe originally, I have a perception of what it is like being the peripheral of Europe or North America and other countries that belong to the global. North what it is like when you have something to say about, I mean, if you have ideas, if you have suggestions, if you produce something part of your research when you talk to someone that is from the centre to use the cells words, there is always an imbalance of power. When you talk to those who come from the centre. And it is problematic because there is a lot of culture and knowledge and wisdom in in all parts of the world that are completely ignored because they don't belong to the Eurocentric project of knowledge and domination. And I think the importance of bringing that into curriculum development, for example, and what we do in our PGCE science group as well, is trying to at least raise awareness that the curriculum that exists in school, that we know of, that we use, they are just one curriculum of many, many possible curricula that could exist, and all the content and skills that are chosen to be taught, in. the national curriculum, they are a selection of knowledge and skills. They interest a certain part of the society or a certain part of the world. Because the way there is, there are some values embedded in the curriculum. There are some ways of, you know, sorting problems out. They are not the same everywhere. So even when people say like. 'Well, I'm giving these students in another country the same curriculum. I'm providing the same curriculum that I provide to students, say in France, the UK, in Germany or in the US, and therefore they will have the same chances.' This is obviously not true because, you know, they will have different ways is to understand what critical curriculum is trying to teach them. They will have different examples to use. They will have different technologies for things or even values about what is really important in life or in their lives. So decolonising the curriculum is just to be more be being fairer, being more comprehensive about the complexity of the world. About the diversity of the world, I'm talking here about race, gender, religion and everything else. It is super important to decolonize the group in that sense.

Sara
I mean, so many things you've said point to. The number of. Disciplines different areas of research literatures that you draw on in your research, and sometimes you know you're not, you're in

particular, but in general it can be quite difficult to bring these different disciplines together. The arguments are contradictory. Or the frameworks are antagonistic to each other. So how do you as you work in these sort of transdisciplinary ways, grapple with some of the inconsistencies or contradictions in the literature and knowledge that you draw on?

Arthur
That's an interesting question. I think it's completely, maybe by chance I have chosen to explore a lot of what critical thinking or critical pedagogy is. Which became a sort of backbone of everything that I do and in a way there is a lot of convergence actually. People coming from different disciplines and different schools of thought, they tend to agree in educating people about being critical about the world. So I think I managed to somewhat skip or sway some of the difficulties that you pointed out because of that. But I don't know if you asked me this, but let me say what I think about the difficulty of bringing together natural sciences with the humanities. That is something that perhaps is the most complex and difficult thing, because when people talk about being critical in physics, in chemistry, in biology, it's not the same as been critical in in sociology, for example, right? It's not the same. A physicist, a critical physicist, a critical scientist, is normally someone that you would see as being Very integral to their work. It's very, you know, attentive to the details they carry out, say, experiments in in a very diligent way. They present data in a very clear and convincing way. I mean, these are some of many other virtues of being a scientist. But you can be a wonderful scientist and be a critical physicist without thinking at any point about social injustices, for instance. And that's the major difficulty that I find in bringing together the natural sciences to social justice. It's because it's a little bit of a change in the mindset that they need to look around. They need to look about the society and need to think about, you know, what the impact that you have in someone else's lives, etcetera. So that's a different way to be critical. And that's I think is the most difficult bit in bringing them together.

Liam
So we ask each guest to send over three papers to help us deep dive into our episodes. So using 'Transforming education for the just transition' by Ruby et al. As a starting point, this works at the interface of science, education and social justice, but not in the ways we've already discussed. This one talks about climate change. So can you talk to us about the role of education in tackling these kinds of phenomena?

Arthur
I think it's huge addressing that, not just in education generally, but addressing that in. Elementary education from primary to secondary schools, to educate people about debt, lifestyles, values, politics and science and technology, have not only in their lives, but in the lives of thousands and thousands of people that live in the other part of the globe, they don't know nothing. They don't know anything about them, and climate change is perhaps the best example of how human activity over the past centuries are now affecting all of us. Regardless of where you live on Earth. So it's a great example. It's a great, great vehicle that we can use because everyone is talking about it. We need to talk about it. There is this famous phrase from, you know, Greta Thunberg. But that says that our house is on fire and if our house is on fire, we cannot be talking about what's the colour of the wall in the living room and it's on fire. We need to act urgently to tackle this so all the changes that is going to be happening in society in the way we use energy and the way we can generate energy is going to change drastically and this is going to have a huge impact. In nature and in how we live our lives, so it's definitely a hugely important topic to educate people about.

Liam
And in this paper specifically this term JUST. 'Just transition' in response to environmental challenges and the systems we live in, what do you mean by that?

Arthur
So it's going to be a massive transition, right, as I said, and we need to think about, for example, everyone now is thinking about buying their electric car and they say that's gonna be great for us, here we live in a big city urban centre. It's very polluted and if everyone has an electric car, electric buses, electric scooters, that would be great because we will not be breathing such a polluted air. Fabulous. OK, that's all good. But we need to think about for example where is the lithium, the metal that is used to build those batteries? Comes from. I mean, what's the impact of the people who live in the region where lithium is digging out to produce those lovely batteries of our lovely cars here in London? Where do they come from? And how the lives of those people have been affected by this? We have things like people being exploited to an extent that their works classified as slavery, you know, so people that underpaid a lot, people that can be poisoned by the extraction of metals in different parts of the world. Or very recently back to my country, you know the last president, the one that I referred to as being a fascist ,was trying to develop the Amazon where he thought that we should start extracting metals from the Amazon. So there is some impact elsewhere. Always there is some impact. There is a trade-off about what you know, technological developments and the quality of lives that we have in particularly in big urban centres and the lives of people elsewhere. Also, even if you think about the UK only, let's talk about the UK. I mean, you have people that have invested their whole lives to work in the industry of energy generation, with fossil fuels, right? I mean we. Know how detrimental that is to nature? We need to change that. OK, fine. But how are we as society and government going to support the transition for those people who work in the industry to carry on with the job? To carry on being employable, to learn again, and how to work in in this new reality. So there are lots of research already pointing out the impact that those who are going to be mostly affected by the transition to a green economy are those more vulnerable. Are those less educated, who are less able to Adapt to the changes, so that's what talking about. We're talking about not only creating, because this mentality already exists like to strengthen the mentality that we need to be more empathetic about other people's conditions. We need to talk about solidarity, not because I want to get a wonderful job that's gonna allow me to travel every month, whenever I want to, and spend lots of money to do whatever you like .That's going to be bad to the world because the world cannot really afford this amount of consumerism anymore. And we need to think about, OK, how can I create objectives in my life that I'm going to be recognised by society, by friends? And how am I going to feel great by doing things that are great to other people and not only great to me. So I mean, all of this individualistic mentality, this selfish mentality that the accumulation of capital. And things that new liberalism is just made things so much worse over the last decades. That's what the paper talks about as well, right? We need to be resistant to new neoliberalism. So we refer to these CCR pedagogy that we are putting forward in the paper and…

Liam
And what do you mean by CCR?

Arthur
CCR is about critical thinking, coexistence, so we need to learn how to live in harmony as much as possible with all the human beings and with nature. And the resistance to neoliberalism. So what can we do to say no to any project that Is ignoring, for example developments that might be, you know, affecting the ecosystems and killing animals and killing nature in or even making the lives of people more difficult. So how can we say no, stand up and say no because we don't think only about us we think about. All of those that are around us.

Sara
I mean, for what you're saying? And the passion of what you're saying it it's almost as if you. Think that there. Is a moral, ethical imperative for science teachers to not just think about these issues, but to bring it into their practice. Is that the case?

Arthur
Yeah, I mean, we don't talk so much about morality. Yeah, because it's almost like, well moral and morality, it is a very. We don't discuss that outside of our inner circles of family as our values and, but yeah, I mean, I'm sure that, I mean we agree in many basics of morality like it's not right to kill someone. It's not right to do harm to other people. It's not right to prevent someone from perhaps be who they want to be. In in some areas, actually you would say that well depending on your background, people disagree with you that that yes, but we need to raise our awareness to the population in general and the one of the greatest and best way to change how society thinks is via school. In school we can change a lot of how our society is going to operate in a few decades time, and I think you're right. I mean, there are things that are not right being selfish or too selfish, it's not right. We need to talk about some lifestyles that's Just a selfish way of living. But you're not thinking about other people. So we need to talk about that. Yes, in our science lessons, in all lessons, I would say.

Liam
How wonderful. Arthur, thank you so much for doing your research. It's so incredibly important. And as a science teacher, I'm completely on board with everything that you've been saying. So finally, we'd like to just ask you our swan song question. What research of yours are you most proud of?

Arthur
Difficult question Liam, but I would say that the paper that I think it's a landmark in my career is the paper that I published with my great friend Brian Matthews, in 2021, 'The Science education against the rise of fascist and authoritarian movements', which first of all, I think I don't know of many papers out there that are addressing that sort of taboo of talking about science, education and in a way politics, isn't it fascism? And I was very proud too. Not only because we managed to create an argument of how critical pedagogy or people like Paulo Freire, for example, could be used to tackle what we argue fascism encapsulates which is racism, sexism, homophobia, social and religious intolerance. And we point out. Many wonderful works that have been published over the last decades that could be used in our science lessons to think more critically about the relationship between science and society. And I was very, very proud actually, because one of the researchers that I admire the most in my field, her name is Angela Calabrese Barton. She actually mailed us to thank us for the paper that we published, that she said was really important to the field. So I wasn't actually expecting so much positive response from my colleagues and I'm really proud of.

Sara
That absolutely wonderful going to be affirmed that way by someone you respect. So it's just it's just really such an accolade for you. Arthur Galamba, thank you for joining us on ‘It's Just Research’. We've really enjoyed chatting with you and learning more about your work.

Arthur
Oh thank you so much. It was a pleasure to come here today and well done for this...

Sara
This has been, It's Just research podcast by the School of Education, Communication and Society at King’s College London, where we explore research by researchers for researchers. This podcast is hosted by me, Sara Black, in co-ordination with my lovely colleague.

Liam
It's me, Liam Cini O’Dwyer. And we have also got our lovely producer, Sylvie Carlos, with us in this team. Join us next time. You can listen to our podcast on all major streaming platforms. Subscribe and you'll get the new episode delivered straight to you.