

Interview Dr. Sibel Erduran

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Sibel Erduran is Professor of Science Education and Director of Research. She is the Editor-in-Chief of Science & Education, and an Editor for International Journal of Science Education. She is the President of the European Science Education Research Association, and Professor II at University of Oslo, Norway. Prior to her appointment at Oxford, she was the Chair of STEM Education at University of Limerick, Ireland where she was the Director of EPI-STEM, National Centre for STEM Education. She held a Distinguished Chair Professor position at National

Taiwan Normal University, Taiwan funded by the Taiwan Global Networking Talent Project; as well as Visiting Professorships at Kristianstad University, Sweden, and Bogazici University, Turkey. Previously she worked at University of Pittsburgh, USA; King's College, University of London; and University of Bristol, United Kingdom. She was a middle school science and high school chemistry teacher in a school with British curriculum in Northern Cyprus. She completed her higher education in the USA at Vanderbilt (PhD Science Education & Philosophy), Cornell (MSc Food chemistry) and Northwestern (Biochemistry) Universities. Her research interests focus on the applications in science education of epistemic perspectives on science in general and in

chemistry in particular. Her work on argumentation has received awards from NARST and EASE.

She has been the recipient of funding from Fulbright Program, Spencer Foundation, Gatsby Foundation, Nuffield Foundation, TDA, Wellcome Trust, EU Marie Curie Brain Circulation Scheme, Science Foundation Ireland, Irish Research Council, BERA and NCCA among others. Currently she is Principal Investigator of two projects, funded by the Wellcome Trust and the Templeton World Charity Foundation.

It is a privilege to have someone like Sibel Erduran, with such academic backgrounds for our interview section, so let us take the opportunity and enjoy some of her knowledge and experience.

1. Going right to the point, you are the editor of two of the world's most important journals in the field of education, what are the main problems encountered in the articles you receive? What tips would you give to our readers who want to publish in these journals?

Prof. Sibel: At a very basic level, I see that many people submit papers without having examined the journal closely. For example, with Science & Education, there is a very particular focus on History, Philosophy and Sociology of Science and Science Education. Some people submit papers without any grounding of the theoretical framework on this theme. They assume that the journal would accept any type of science education article. So my first suggestion is, examine the journal well. Read some sample

papers and find out what is acceptable given these are published papers. Another problem is that sometimes people replicate studies in different countries and think that this replication will be innovation. A publication should be an original contribution so unless the new country context can introduce something novel, it is not exactly a publishable paper even if it's well written with sound theoretical and methodological approaches.

2. You have had a unique professional and academic trajectory, working in several regions of the world in different Universities, with different realities. Tell us a little about this experience, how rich it can be, the difficulties and how to achieve this privilege.

Prof. Sibel: I have indeed been very fortunate to have done all my higher education in the USA, and I have worked in 3 different British universities now. I have also worked in Ireland and have held visiting professorships in Sweden, Turkey, Taiwan and Norway. These experiences have enriched my understanding of science education in different contexts. Some of my other experiences such as those in countries on the African continent have opened my eyes to our assumptions about what education could or should be. So above all, these experiences have led me to appreciate the importance of assumptions in research.

3. Your position as director of research in education and science at Oxford University, considered by many as the best University in the world, gives you an insider's view of education on the planet. In your opinion, what are the main challenges for world education? What are the possible ways to overcome them?

Prof. Sibel: At the moment, the important challenges in the world include issues of social justice, equity in representation and effective problem-solving. The planet itself faces significant problems due to climate change and we face a major planetary emergency if we don't act fast

enough. For major problems like climate change, we need to find a convergence for political will and scientific consensus. In accordance with this goal, we need to educate the public as well as school and university students about why we consider climate change is real. Many people get indoctrinated to scientific knowledge without understanding how and why we take certain claims to be true. There is a big component of education that needs to foster in evidence-based reasoning skills in citizens. However teaching about rationality and evidence will not necessarily achieve problem-solving. Many problems also have values, morality and identities embedded in them. We need to learn to foster a certain kind of tolerance that ensures compassion, empathy, and communication among people.

4. One of the big problems we experience in Brazil, and in many parts of the world, is the lack of funding for research. You had several projects funded by large funding agencies in various regions of the world. Give us tips on how to access this kind of resources.

Prof. Sibel: Funding for research is a significant problem in many parts of the world including the United Kingdom. The sources are scarce and sometimes, they

can be also cut in the midst of the duration of project, as we have experienced in recent times in the UK. Even so, there are certain funds available nationally and internationally. A lot of this requires doing some research about funders. For example, I would pay attention to which funders researchers cite in their papers. Eligibility may be a problem in some cases, but it is worth keeping track of funder information through other colleagues' work. Sometimes calls are made through professional email distribution lists.

5. Talking about your department in Oxford and your role as a researcher, what is the profile of a student you would like to be mentoring in your master's or doctoral program? What skills do you most value in a researcher?

Prof. Sibel: I like my students to have a sense of initiative where they can pursue and find out information without me always telling them to do so. This includes bringing new ideas to the table themselves. We can negotiate these ideas but it's important that the students are independent thinkers. I also value when students can be critical and do not accept everything that they read. Being critical with evidence and justification is important for Master's and Doctoral work.

I have found that the most successful of my students have also not shyed away from doing a range of things even when they were not asked to do so. For example, helping out with the organization of an event, hosting colleagues and so on. There are broader set of skills that are developed through engagement in different activities that ultimately contribute to the development of the researcher beyond just knowing concepts and methods.

6. What is your perception of research and education in Brazil? Are you interested in any issues specific to Brazil and Latin America?

Prof.. Sibel: I have had some collaborators from Brazil and I can genuinely say that I have very much enjoyed working with them. There is a certain level of intellectual curiosity in Brazil that I really like. I think many people in Brazil can also relate to my work, as I see that they tend to use my research. I wish that I could read and understand Portuguese because I am aware that there are many publication outlets where many insights are developed and shared. I am certainly interested in educational research in Brazil and more widely in Latin America.

7. Which topics do you consider to be "hot topics" for the coming years for research in education? Why?

Prof.. Sibel: Given the pandemic context as well as the issues such as social injustices the pandemic has exposed further, there will be much effort to take a holistic look at education to ensure that we can have systematic approaches to solving problems. We need to take interdisciplinary and multidisciplinary collaborations seriously because many problems require many perspectives. Covid-19 is one such example. It's not enough to only focus on the immunology around the pandemic. We have seen that politics, economics, public health regulations and so on matter, and they need to be considered concurrently in order to solve the problem.

8. Early in your career you were a secondary school teacher, from that professional experience tell us about how worthwhile a career in teaching currently is.

Prof.. Sibel: Teaching has always been an important aspect of my life. My father and my grandfather were teachers. I grew up in a household where the teaching profession was highly respected. In fact, probably all conversations in our household were pedagogical experiences

for me. So teaching is a big part of my own personal identity. Beyond this, being a secondary chemistry and middle school science teacher has equipped me with some understanding of students. I have seen that children want to be respected as well. They respond well if you take them seriously, and not put them down as being limited or naughty. Every student has potential to learn something and it's our job as educators to expose and build on that potential. As a teacher, I always thought it was my own responsibility to make the lessons interesting to my students. If they were not and they were off task, it meant that I wasn't doing enough or doing the lesson in a way that would be engaging for them. I don't believe in focusing on behaviour management in this sense. I think all children can learn to behave, we can teach them, through being interested and engaged cognitively and socially. Children need a purpose in their learning and as a teacher, I strived to give such purpose to them. This is true of teaching today and will always be true of any teacher in the future. Teachers are pillars of society. We cannot have any professionals without good teachers developing them.

9. The world experiences an intense diffusion of scientific Fake News and

conspiracy theories, an especially critical problem in Brazil, how do you perceive this issue? How do you suggest tackling it?

Prof.. Sibel: We need to teach people critical thinking skills, the ability to evaluate evidence and claims. More importantly though, we need to teach people to respect evidence because if they don't respect evidence, then I am not sure how effective it will be to expect that they will use evidence. We can provide some examples that illustrate why evidence matters. Sometimes personalizing situations may help. For instance, if you were robbed, would you want the thief to be caught? Would you want the evidence to be collected and used in a way that identifies the thief? This is true of online shopping these days.

10. Finally, give us a word of encouragement for our readers who are thinking of becoming researchers from your very successful career.

Prof.. Sibel: I suggest that the readers follow whatever interests them. Follow your passions and don't settle for less. Find out what it is that YOU are interested in, not what others think you are or should be interested. If you take the small steps, every decision towards things that you enjoy doing professionally in terms of

research, then you will eventually gather the breadth of experiences that will settle you in a professional context that works for you.