

# Five minutes with Nikolas Rose: “The imperative to make exaggerated promises about impact is damaging to the science itself”

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2/6/2014

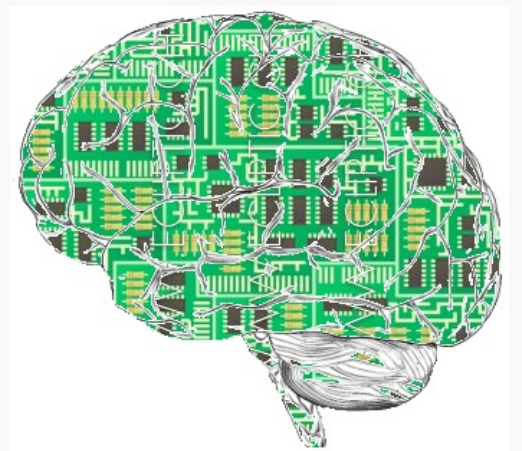
*Chris Gilson, Managing Editor of our sister blog [USApp](#), recently interviewed [Nikolas Rose](#), Head of the Department of Social Science, Health and Medicine at King's College London and one of the principal investigators of the interdisciplinary, European Commission-funded Human Brain Project. Here he discusses social science's relationship with STEM disciplines, the interplay between research and policy, and how his team has approached the tricky area of public engagement.*



## Can you tell us a little bit about the Human Brain Project and your role within it?

The Human Brain Project, which is funded by the European Commission, is one of the future emerging technologies projects of the European Commission, and its principle objective is to create a computer-based model of the human brain. But it's rather more than that; it's a kind of data integration model. It's aim is to try and bring together the huge amount of data that there is in published research papers and elsewhere, and the huge amount of clinical data that there is in hospitals' records and other sources, and to bring that together, and to integrate it, in order to create a kind of platform for understanding the human brain at the neuronal level.

Since its inception, those who were developing the human brain project have been aware of the fact that there are major social and ethical, and perhaps even legal, implications of these developing understandings of the human brain. So it was agreed right at the very beginning that a certain proportion, about 3-5 percent of the funding for the Human Brain Project, should be set aside to look at these social and ethical issues. I am part of that social and ethical division of the project; I'm on its steering committee. Our particular role here at King's is to set up what we call the Foresight Lab, which is to begin to think through over a 5, 10, 15, 25 year timescale, what kinds of implications might be of the developments that are promised by the Human Brain Project.



Credit: Gengiskanhg (CC BY-SA)

## Can you elaborate on the role of the social sciences in the study of the mind?

I think there are two ways of thinking about the possible relationship of the social sciences to these emerging biotechnologies. The one which I think has been leading, since the role of the social sciences in the Human Genome Project, has been to see the social sciences as studying the social, political, ethical, legal implications. So leave the science progressing on its own, and let's try and think through what the implications might be. I think that's a very reduced role for the social sciences. I think that one might seek two other ways in which the social sciences might collaborate here. First, in setting the very agenda, because especially in relation to neuroscientific research, and research that links to mental disorders, and to brain diseases, it's really crucial, it seems to me, that these are not thought of as principally or solely neurobiological problems, and to some extent, the trajectory of how the research question is set up should involve collaboration and discussion between the social sciences and the life sciences. The same might be said about genomics and other areas as well.

Second, and this is an issue which I've been recently arguing myself, is that if you take something like the understanding of the human brain, it's impossible to understand it unless you recognise that the brain is embodied, and unless you recognize that the embodied brain is intrinsically, not just extrinsically, enmeshed in its social and cultural and experiential world – and that's not just an add on. It seems to me that that is crucial in the understanding of how brains, in particular, human brains, develop, how their capacities are shaped, how they are modulated both across the life course, and at any one time. My argument would be that we need to get the social sciences engaged, firstly in setting the very research agenda, and the forming of the research problem, and secondly, in the actual scientific work that's going on here. This is not a wish for the social sciences to get just a portion of the money, but it is a very real argument that unless you understand the social embeddedness of neurobiological processes, and of biological processes more generally, you simply won't understand the phenomena that you're trying to explain.

**Are the STEM sciences receptive to the work you are doing and what are the kinds of disciplinary barriers that need to be overcome in such collaborations?**

I think there are different ways in which the STEM disciplines can be receptive to the social sciences. The first way, which is not necessarily the best, is because of the increasing demand by those who fund this research, that it is socially responsible. That responsible research and innovation is undertaken in order to address grand challenges. You can certainly see in this in the European funding, in Horizon 2020, and in all the analogous projects. To some extent to those who are working in the natural and life sciences on these emerging technologies, therefore feel that they have to engage the social sciences if they're going to be able to obtain their funding. That provides a foothold for those of us in the social sciences to work with researchers in the life sciences, but its not necessarily a particularly adequate way of conceiving that relationship, because it means that we're there by necessity, rather than by choice.

The development of a more integrated relationship between social scientists and life scientists I think, is a more difficult kind of a question – it raises issues at a whole lot of levels. At the most mundane, at the vulgar, it raises issues of funding. The funding that is given in these collaborations to the life sciences, vastly exceeds the small proportion that is given to the social sciences. It raises questions of status – of who is actually in control of the research, and who has the power to shape that research. And it raises questions of what is in it for the life sciences and the life science researchers to collaborate with social scientists. While social scientists, especially with the rise of science and technology studies, can work quite well, within their own disciplines through these collaborative relationships, the same is not true for say a post-doc neuroscientist who is not going to get very many brownie points, or very many publications, at least that are recognised, by working in that collaboration. So there are a whole number of real rather practical obstacles that need to be overcome if one is going to develop a genuinely collaborative relationship.



Credit: British Library (public domain)

More generally, I think, there's a kind of asymmetry which needs to be addressed. Over the last 15 or 20 years with the rise of science and technology studies in the social sciences, social scientists have spent a lot of their time trying to understand the forms of thought, the systems of argument, the types of experimentation, the shape of problems and solutions in the life sciences. Social scientists have tried to become literate in those disciplines to be able to have intelligent discussions with the people that they're working with. I think the same is not true the other way around. I don't see very many life scientists spending a lot of time reading science and technology studies. I don't see many of them spending a lot of time thinking about and trying to become literate in the kinds of arguments that are made by social scientists. Sometimes that is the fault of the social scientists because, like it or not, the arcane language in which some social science research is formulated is

impenetrable to those outside. And I think that is a problem the social scientists should seek to address themselves— I’m involved in a journal called *BioSocieties*, which is trying to develop that kind of dialogue, and we have, as a condition of publication, that social scientists don’t write in an impenetrable argot, as if they are only addressing the 15 or 20 people who are in their particular sub-disciplinary field.

So it’s partly that and it’s partly also, I think, that it’s a challenge to persuade many of those in the life sciences that the social phenomena and the social realities of their research and of their technological developments require the same kinds of rigorous investigation, empirical understanding, conceptualization, as the things that they are doing in their labs. It’s not that things get easier when one moves to the molecular scale, to the molar scale, they actually get more difficult, and it’s a challenge to have that conversation. There are many, many reasons for that, going right back to the division that one sees very early on in schooling, different kinds of training, different kinds of apprenticeship, different styles of thought. I think if one’s going to overcome that barrier, really overcome that barrier, it’s a question of beginning to do that work quite early on in the careers of natural scientists, life scientists, and social scientists. Getting them together, getting them to talk with one another, to argue with each other, and to overcome the mutual suspicion. It’s not impossible, and we’ve had some experience with my group in doing that, but it requires work.

**What are some of the implications of your bioethics work on public policy? Given the significant funding and interest from the European Commission and the White House, why do you think this is an issue of particular political salience at the moment?**

I think that is two questions in one: why is it so salient? It’s salient because, I think if you take investment in the brain project for instance, at least part of that reason for the investment, both Europe and the United States, is the perception by the funders that research and development in the brain sciences will help them address some fundamental challenges that they are about to face, that they are already facing, the challenges of mental disorders, the challenges of neurodegenerative diseases, the challenges of an aging population and so on. So clearly, those who have an interest in funding the research believe that the research, the outcomes of that research will have, should have, could have, major social and, indeed, economic implications. If you think about the calculations of the costs of brain disorders and the projections of the increasing costs of neurodegenerative diseases in an aging society. So clearly that is one reason why there should be an interest in the policy implications of this work.

I think that the risk that one faces in this field is that, unfortunately, many of those who are involved in raising funds for these new technologies are forced by the climate in which they are in to make exaggerated promises about the timescale and level of impact that their research is going to have on these fundamental questions, implying that our understanding of the brain is going to have major implications for our education system, for our child rearing system, as well as for psychiatry and for brain disorders and implying that that is going to happen quite quickly. The imperative to make promises about translation is deeply inbuilt into scientific funding and grant applications and so on, and I think that often leads to over promising, to over claiming, and in my view that is really quite damaging to those who want to support this work in the sciences because what we know is that, with a few exceptions, it takes 10, 15, 20, 25 years for fundamental biological research to move from the laboratory to develop into applications and implications and often the ways in which it does this are really quite difficult to predict, they are quite complicated, they depend on a lot of other things going on in the world outside, and I think the danger of over-promising is that it can rapidly lead to disappointment. You believe that the next revolution is going to be just around the corner, you are interviewed on the radio and asked “when is this going to be in the clinic?” and you have to say “3-5 years. In 3-5 years this is going to revolutionize our understanding of Alzheimer’s disease” or whatever, and 3-5 years later it is still 3-5 years away.

On the other hand, what you do get is people in the policy field forming a kind of attachment to those people who are popularizers, who are over-promising, who do say “brain stimulation is going to transform our education system or who do say our understanding of genomics is going to allow us to identify and then to treat all serious diseases when the child is 3 years old through gene sequencing” or whatever. So, on the one hand it is a problem for the



serious researchers, on the other hand, it does lead to people making premature, having very premature beliefs about what the policy implications might be. We see this especially in relation to the hype around neuroscience today. My own view is that it is actually damaging to the science itself– I'm a huge supporter of the work that is being done in neuroscience and I don't think it helps it at all to make these very, very exaggerated promises about the speed and implications of neuroscientific research for policy.

**How have you found the reception of the Human Brain Project by the general public? Is the human brain a concept that captures the public imagination particularly well and was this considered in the early stages of the project?**

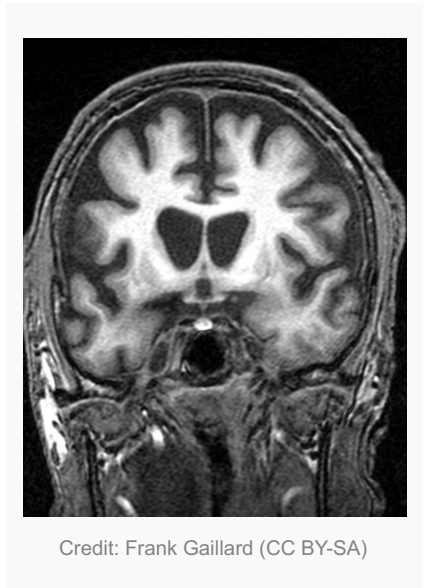
I think it's difficult to talk about the way in which the Human Brain Project as a project in and of itself has captured the popular imagination. It's in early stages, it's not clear how many people are aware of what it is doing and when people are aware of what it's doing they tend to misunderstand what it is doing. The Human Brain project is largely a data integration project, it's largely trying to pull together data from a whole range of different sources, it's doing much more than just creating a computer model of the brain. People have concerns about modelling the human brain, and worries about free will and worries about creating conscious machines and those kinds of things, which are not necessarily the real kinds of issues that are going to be addressed by the HBP.

More generally though, it's undoubtedly the case that at the moment, at least in Europe and America and similar developed societies, the brain has become a fascinating object for public debate. Brain-based explanations of everything are becoming increasingly prominent in the media and also in the commercial field– brain gyms to train your children, brain foods, sudoku or brain exercises to ward off dementia etc. So there is a kind of, not just a fascination with the brain, which I think would be trite, but I think the beginnings of a different way of thinking of the role of the brain in individual and collective life.

I worked for 10 years or so on the social implications of neuroscience book that I wrote a little while ago– I don't think it is that people think that psychological explanations of human behaviour have become completely displaced by brain based explanations of human behaviour, but certainly the idea that mental states are underpinned in some fundamental ways by our brains, by our neuro-biology, and that the nature of our brains has huge implications for who we are, individually and collectively, and that our capacities and attributes. I think that is becoming rather a pervasive way of thinking, so I think it's that rather than the implications of any one piece of research or any one funded project like the Human Brain Project. It's that really that is the phenomena that one has to really try to understand.

**Are there some specific engagement techniques that you would recommend other scientists explore (noticing for example the fantastic short explanatory videos and social media presence)?**

I think there are all sorts of way in which those who are doing the research can engage with the public. And I think it is rather important that it is a genuine engagement, rather than a one way traffic of communication. I think the most important thing that has come out of the work that I have done– working in genomics, working in synthetic biology, and now working in relation to neuroscience– is that those who are doing the research and feel able, and indeed, perhaps feel obliged to explain what they are doing, why they are doing it, why they think it is important to do it this way, and what they they the implications might be, as well as being able to talk frankly about the risks, and about the ways in which those risks are managed. And to do so modestly, to do so openly, and to do so with a certain degree of humility, and to recognize that the concerns that people who are not brain researchers have, are genuine and legitimate concerns and to try and develop a language for that conversation. I don't think we're very good at having a language for that conversation yet, despite all the years of public understanding of science and science



engagement and so on and so forth.

There are certain areas where it is easier and perhaps those provide a bit of a foothold, the question of disease, both physical and psychiatric brain diseases is one that engages so many people at a personal level in terms of themselves, in terms of their families and in terms of those who they know in their communities. And that provides, and this is why around genomics and around neuroscience, this provides a space, I think, for genuine debate to take place. And why I think it is an important conversation is because that debate requires the scientist to realize that the conditions they are dealing with, whether they be psychiatric diseases, brain diseases, physical diseases are all diseases of human beings living in their social environment and they are not things that happen with genes in petri dishes in labs and that that's a rather important scientific thing to recognize and not just, kind of, an addendum from the social sciences or from the ethics. Recognizing how the problem feels for those on the other side, for those who are experiencing it, and therefore what the solutions may look like for those on the other side, I think that is something which can educate the scientists as well as educate the lay public and that is why a genuine conversation is, I think, the thing that one should strive for— however good the videos and all that might be in sparking people's interests, I think we need to go a little bit further than that.

*Other extracts from this interview appear on the [USApp American Politics and Policy blog](#).*

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## **About the Author**

**Nikolas Rose** is a Professor of Sociology and Head of the Department of Social Science, Health and Medicine at King's College London. His work explores how scientific developments have changed conceptions of human identity and governance and what this means for our political, socio-economic and legal futures. From 2002 to 2011, Professor Rose was Professor of Sociology at the LSE, and founding director of the BIOS Centre for the Study of Bioscience, Biomedicine, Biotechnology and Society.

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