

Crossing Channels

Interdisciplinary answers to today's challenging questions

A Podcast series hosted by **Rory Cellan-Jones**

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Season 2 - Episode 6

IS TECHNOLOGY CHANGING OUR BEHAVIOUR?

With

Maria Kleshnina (IAST)
Daniel Nettle (École normale supérieure - PSL)
Amy Orben (University of Cambridge)

Is technology changing our behaviour?

SPEAKERS

Maria Kleshnina (IAST), Daniel Nettle (L'École normale supérieure), Amy Orben (University of Cambridge)

HOST

Rory Cellan-Jones

Rory Cellan-Jones 0:07

Hello and welcome to Crossing Channels, I'm Rory Cellan-Jones. What drives human behaviour and has technology changed that? That's the subject of the latest in our podcast collaboration between Cambridge University's Bennett Institute for Public Policy, and the Institute for Advanced Study in Toulouse. And as ever, we're going to use the interdisciplinary strength of both institutions to explore a complex challenge. We're looking at the main drivers of human behaviour, the difficulties of cooperation for the greater good, and whether those drivers are immutable or have changed in the era of digital communication. To explore these issues today, we have Maria Kleshnina from the IAST. Maria, you start us off, what does your research focus on?

Maria Kleshnina 0:57

Well I'm an applied mathematician, but my primary research interest is studying the evolution of cooperative and learning strategies. I'm also interested in how the inequality affects this evolution

and how then we see different outcomes out of it.

Rory Cellan-Jones 1:14

And that's going to be a theme that we'll explore towards the end of the podcast. From the University of Cambridge, we have Amy Orben. Amy reminds, what do you focus on in your research?

Amy Orben 1:24

Yeah, and my research focuses mainly on new technologies, such as social media, and how they're changing behaviours, especially in adolescents and with a specific focus on mental health.

Rory Cellan-Jones 1:35

Excellent. And last but not least joining us from the École normale supérieure in Paris, we have Daniel Nettle. Daniel, what are your main research interests?

Daniel Nettle 1:44

Well, my main research interests, from the point of view of today, are the impacts of deprivation and inequality on the human mind and on their behaviour.

Rory Cellan-Jones 1:52

Excellent. Well, let's get going. Now, it might seem like a ridiculously broad question, in effect asking you to sum up the whole field of psychology or anthropology, and we will zero in on a couple of key areas. But this is the big question, what are the most important drivers of human behaviour? Daniel, would you like to start us off?

Daniel Nettle 2:13

Well, that's a big one. Thanks very much. I think broadly speaking, my perspective is that the rational actor model is about right, which is to say, people do things that they believe will advance their goals and interests. I think the rational actor model needs to be very broad in the sense that people's goals and interests are pretty varied, right. They're certainly not narrowly concerned with just getting as many resources for themselves as we caricature economists as believing. In fact, people have very broad goals that include having a good reputation, being moral, having a meaningful moral framework, being part of a society. And once you enlarge the rational actor model to include those goals, I think, you know, we capture what people do pretty well.

Rory Cellan-Jones 2:59

So have you as academics built over the years, a more complex model of these drivers? Or are we still relying on what we thought, I don't know, 50, 100 years ago?

Daniel Nettle 3:11

Well in some ways, it's become more complex. I mean, the difficulty is that people clearly have multiple things that they try and satisfy at the same time, right? You know, they want to be a good person, but they will also want to get pleasures and things for themselves. They want to have status, but they also want to have social connection. And I suppose the big action is understanding

how they trade those things off. And then human life is full of interdependence, right. So my attempt to have the life that I enjoy is critically influenced by the attempts of all the people around me to have the lives that they enjoy. And we have to compromise that, we have to sort of negotiate that collectively all the time. And hence, the institutions and cultures and norms and expectations that human societies produce. So really how the individual, the individual actor, the individual agent, interacts with the broader field of what everyone else is doing seems to be the central question of social science. And yeah, in some ways, we've got a bit further, in other ways, we actually come back to the writings of Durkheim and Adam Smith and those classic people, and they weren't that far wrong.

Rory Cellan-Jones 4:18

Maria, do you agree with that, that our picture of these drivers has not changed radically?

Maria Kleshnina 4:25

I agree with most of what Daniel said about the rational actor and many different circumstances where people need to navigate might require different actions and different drivers that drive their behaviour. And from the evolutionary game theory perspective this is also very rich because at the first level it enters this kind of need to optimise our behaviour, to optimise the costs and benefits whenever we're facing the situation. But there's also many different things that we need to keep in mind about environmental and social circumstances that we're in. So indeed, we are going back and forth. But I think that at this stage, I think we are more advanced than we were 50, 100 years ago.

Rory Cellan-Jones 5:07

And what tools are people in your field and in related fields, using to understand, to drill deeper into these drivers of human behaviour?

Maria Kleshnina 5:16

So in our field primary is the modelling approach. But we now saw that, of course, modelling is often very isolated, and sometimes has some assumptions that are not close to reality. So sometimes the predictions of the model need to be tested. So these days, it becomes more and more common to take the models to the labs and test them and see how they behave.

Rory Cellan-Jones 5:39

And tell us about modelling, for those of us who are not immersed in this field, what does that mean?

Maria Kleshnina 5:45

So usually, we formulate some assumptions and we try to construct a model that accounts for these assumptions. And we try to find the factors that drive our behaviour as to why in this specific situation cooperation might emerge, or why in this specific situation there might be defection that we see more and more often. So in our case, it would be constructing a model and finding the equilibrium which tells us what is the most likely behaviour that we will observe.

Rory Cellan-Jones 6:16

Amy Orben, good moment to bring you in, because you're very much focused on social media, young people, mental health. Is that a new approach? Or is it using the same techniques as we've heard of before, but in a slightly different context?

Amy Orben 6:33

I think it's a mixture really. It's a real challenge to understand how behaviour changes in different environments, and the online environment is just a new type of environment with different ways in which people interact. For example, social feedback is heavily quantified by like counts. And that gives us real testable differences between, for example, an online and offline social environment for young people that we can then approach with very similar methodologies as others. So we're currently building a large programme of work where we're going to adapt models that cognitive neuroscientists have fit for many decades really about how we form habit or how we deal with social rewards. But we adapt it to fit to social media data that we scrape off the internet. So I think it's a new question, but actually, the tools that we have as scientists are still the same and we can apply them in exciting new ways.

Rory Cellan-Jones 7:33

Well, let's zoom in on one type of behaviour, that of cooperation. Humans have a long history of cooperating together, which has helped us survive for hundreds of thousands of years. But we don't always do it well, even when doing so could help us tackle global challenges such as climate change, pandemics, and so on. So why don't we always cooperate? What mitigates against that kind of human behaviour, Daniel?

Daniel Nettle 7:55

Well, in a way, I would start the other way around, which is why should people cooperate. I would focus on well, when cooperation does work, which is an extraordinary human achievement, and not you know, we're very unusual in the animal kingdom in terms of the ways we cooperate.

Rory Cellan-Jones 8:11

So when you look at other species, is that one of the things that defines humans then cooperation?

Daniel Nettle 8:18

Well, I mean, it depends what species you look at. But I mean, obviously, for example, ants and bees and wasps, with their, you know, their system of division of labour between workers and drones and queens and so on, it represents the, you know, the ultimate form of cooperation in which arguably, the individual ceases to be the individual animal and becomes the colony, right? Compared to them, I suppose, when we're not particularly cooperative. But if you compare us to pre-living monkeys or chimpanzees, I mean they don't have institutions they have individual one on one relationships and certainly there is, you know, cooperation between some individuals and some other individuals. But they don't have institutions, right, they don't have constitutions, they don't have Parliaments they don't, they don't bind each other into cooperative relationships in the way

that humans do. So I think what you need to start by saying is when that works, why does it work? There's some conception of shared interests, there's some conception of shared similarity. And there's some conception of things that bind us in, you know, if I broke the laws of France, not only might I get caught and tried in a justice institution, but also people will think badly of me. So we're bound into a moral order that allows us to cooperate. The big challenge of if you're talking about cooperation at a global scale, for things like climate change, is how can we bind each other into a moral order given that someone emitting in China isn't really thinking about the knock on consequences of someone in Tahiti?

Rory Cellan-Jones 9:38

Maria, let's hear from you then on that, what does your work tell us about how people come to cooperate on a small scale?

Maria Kleshnina 11:24

This is the core question of the evolutionary game theory. When we study cooperation, like how does it emerge in the first place? And often the repeated interactions is probably one of the key component, right. We need to repeatedly interact with people so that we start valuing our future interaction, we start to think what could happen in the future if we behave in the way we behave right now. So there are many mechanisms, there is reciprocity, it could be direct and indirect. So whether we account only for direct interactions with each other, or whether we also take into account reputation of another person. This is also something that could help us to cooperate with somebody or not, depending on their reputation. And as Daniel pointed to, kin selection is, of course, one driver that in small groups is particularly important. So when we talking about the very small societies, it's very important when people cooperate with relatives and close friends. And how from the small scale it goes to the largest scale is a very interesting question. Because at the have evolutionary level we've been equipped with these preferences for more cooperative behaviours, and then probably we can take it to the larger scale, but imperfectly given that we do observe a lot of defection.

Rory Cellan-Jones 11:06

Amy, let's bring you in on this. You obviously, you're really focusing on the communication zero, the time when we can speak to complete strangers. Do you have evidence that that is facilitating cooperation or not?

Amy Orben 11:21

That's a really difficult question to answer. And I think it's because it probably goes both ways. So the ability to communicate and understand what people are going through across borders does make people seem closer together. So we don't really have a lot of quantitative evidence from the Ukraine conflict yet. But there has been qualitative research that has interviewed young people using TikTok to get news about the Ukraine conflict and where those were then a lot more personal stories of young people making videos who were in Ukraine that made these sorts of stories a lot more visceral, a lot closer to the people and the way that we can build what researchers called *parasocial relationships*. So relationships with people we might not know on a personal level, but

because we get information about them all the time, we actually feel close to them, could change the way for example, these sorts of conflicts are played out. However, naturally social media and these digital environments, their algorithms also decide what we see and there's a lot of concern about polarisation both exposing people to the same views but also to two very different views and how that can make us maybe collaborate less. So I think it probably works both ways. And we need to understand how it helps and hinders collaboration to then help build a digital society that that moves towards collaboration rather than against it.

Rory Cellan-Jones 12:58

And it's obviously at an early stage. I mean, the social media era began a little more than, I suppose, 15 years ago. But there is, as we've discussed, a vast amount of data out there. Is the science advancing fast in that area in terms of understanding the drive to cooperate and so on?

Amy Orben 13:12

I would say it is advancing quickly, but I think it's not advancing quickly enough. So what we're seeing is a split between the science in the public space so that researchers like myself and the people on the podcast employed by universities do and the research in the privatised space, often in, for example, technology companies that are building up their teams internally. The people like myself who work in universities who often have access to some data, for example, we use Twitter data a lot because openly available. But actually a lot of the things that go on on other technological platforms that safeguard data more, we're completely closed off from and there's a bit of a battle going on there. And I think as 21st century inhabitants, we need to start thinking about how we want our data used for research purposes, because naturally, only the public facing research can really help us craft better public policy, regulations and drive, you know, more open changes to how we want our society to look like.

Rory Cellan-Jones 14:19

Daniel, what's your take on whether cooperation has been affected positively or negatively by this digital era where you can have friendships with people that you never meet face to face?

Daniel Nettle 14:34

I think Amy's probably right that it's a sort of double edged sword. But on the other hand, I mean, I think for academics, for example, our ability to network and exchange information has accelerated enormously, and that has led to, for example, the real emergence of a sort of consortia style social science, where we really address big problems in ways that are much more interesting and have richer potential than the kind of one researcher in that person's field site, you know, labouring away with no accumulation and no sharing. There's a movement called the Open Science movement, which is very big in research, which says a lot about sharing information, sharing data, forming consortia to be able to tackle problems powerfully instead of all competing as individual researchers. And I think that's a very inspiring model. We need a version of that for the political sphere. That's more difficult, right? Because people's interests seem to conflict in very obvious ways. And they're kind of parochial and stuck to their particular factions. But it can be a force for good. Will it automatically be one? No, I think not.

Rory Cellan-Jones 15:33

Well, Amy, let's take a deeper dive into your research, which looks particularly young people. Just talk us through how digital technologies affect them. And whether that leads you to think that maybe we need a bit more regulation. There's a big worry about the impact of technology on young people and whether it should be curbed?

Amy Orben 15:56

Yes, so young people are really the first adopters of many technologies. So they're really an interesting population to study. Some people say they're like the canary in the coal mine, in terms of adopting these new technologies and experiencing their impact. And naturally, there is a lot of concern. Over the last 15 years, we've seen a decrease in adolescent mental health and an increase in digitalization. And people are concerned that the two are linked. Correlation is not causation. And so while these two trends have been occurring at the same time, researchers have been tasked to figure out whether they're actually linked. And what we found is that it's very complicated. There do seem to be certain populations that are impacted negatively, just as there are some populations that see positive impacts. So there's been some work in trans youth in the States which has shown that for them, being able to explore their identity online is very positive. But then for those who maybe already struggle with their mental health or are more vulnerable, we've been seeing more of the negative links. And I think what we need to do is move our conversation beyond just trying to understand what's the impact of social media and mental health, because social media is too broad a concept. What are we doing? How much time are we spending? What content are they interacting with? We need to understand all these details to actually know what the link might be. I always say if you're asking me how social media might impact a certain person, it's like asking me how eating sugar will impact them. I don't know if they're a diabetic, or if they've already eaten 50 chocolate kicks this week, or if they're just really hungry, or they've just run the marathon. So I think that sort of nuance is what we need in that space as well. We are seeing vast changes in behaviour and how young people feel. So it's an important question to continue investigating.

Rory Cellan-Jones 17:52

As someone who reported on this area for some years, there's been an awful lot of moral panics, politicians, concern groups stating quite clearly, for instance, video games are really bad for young men, they encourage violence, or social media is making young women depressed, it's causing an uptick in suicides. Is there the evidence for any of that, or is a lot of that speculative?

Amy Orben 18:18

You're right, that concerns about technologies run deep in society. And I think we often see technologies as the real drivers of change around us, the sorts of feeling of what we would call technological determinism. And so we easily link things like uptick in violence to new technologies, whether that's movies, radio programmes in the 30s, video games in the 90s, or social media and grime music on YouTube now or TikTok, for example. And I think often over time when there's actual evidence that emerges the link is a lot more complicated. Naturally, I think it's the million dollar question about whether these broad changes in the online environment are now actually

having an impact or if it's just hot air. I think we don't know yet. So I do think that for some people, there will be a clear impact. But because there's such variation in the population, the sort of advice I've given to the UK Chief Medical Officer, or the US Surgeon General, is that we cannot yet give concrete recommendations for all young people, because we might be harming or benefiting different people in different ways.

Rory Cellan-Jones 19:29

Politicians don't like that kind of answer, do they? They want the yes or no? Does it harm or does it not?

Amy Orben 19:34

They do. And I think technologies are also an easy thing to blame. So young people are faring a lot worse. But we are also in a world that is very, very different. We've gone through multiple economic and social crises. And it's very easy to blame technologies and not, you know, the policies of your predecessor or your voters. So I think we've seen technologies be also a kind of easy thing to blame for politicians over time. Naturally, they do have a part to play and I do think we need more accountability in the way they're designed. We cannot just rely on science to keep technology companies accountable because we're very, you know, small, underfunded field while these giants of technologies are developing ever quicker. But I think we do need to be measured. Politicians don't like it. But my job is to tell what the data says and not what they want to hear.

Rory Cellan-Jones 20:30

Well, let's, as we move towards the conclusion, look at another subject, the impact of inequality on human behaviour. Daniel and Maria, I know you've both thought about inequality. Daniel, how does inequality affect behaviour?

Daniel Nettle 23:55

Well, I think it probably depends which behaviour we're talking about. But I've thought about it mainly in the context of wellbeing. And I think there are, there are sort of first order consequences and second order consequences. Increasing inequality just basically means making the gap between the poorest and the richest bigger. And generally, that's bad for average wellbeing in the first order simply because the wellbeing of the people who get worse off goes down a lot and the wellbeing of the people who get better off doesn't go up very much. So on average, people are worse off. There are diminishing returns to having money. This has been known for a long time. So the first 10,000 pounds you have a year does enormous wonders for your wellbeing and the second 10,000 a bit less and the third less and so on. So obviously, if you take money from the poor and give it to the rich, it's on aggregate bad. Whereas if you take money from the rich and give it to the poor, that's why we have progressive taxation in many countries, it's on aggregate good. So those are the sort of first order consequences.

The second order consequences is if I'm living in a world where I know a lot of people are in a bad way, you know, they're really desperate, they're worried about whether they can make ends meet, they're facing scarcity. That actually does something bad for the sort of public milieu in that people

start to not trust each other, they start to worry, there's the wrong kind of people out there. And there are desperate people out there who might turn to crime, or you might envy them and so on. So there's a sort of second order consequences, not just for the people who are at the bottom of the heap but actually for everyone. It's kind of subtle to characterise, and there's lots of debate in the literature about whether this is real, but I think it probably is that there's a sense in which by making the gaps bigger, we all lose out in a sense of trust and a sense of common belonging because the differences between people are exaggerated. What's the sort of evidence for this? Well, it's pretty correlational, generally, but we know that well being is higher in more equal countries like Scandinavia and Germany than in the States, for example. And interestingly, we know it's also higher in Japan, which is less unequal than America, but for very different reasons. So there's sort of correlational evidence suggesting that when you can get inequality less, you do have the sort of society level payoffs.

Rory Cellan-Jones 22:50

Maria, tell us about your research in the area of inequality and human behaviour.

Maria Kleshnina 22:55

So of course, for long we know that inequality is not great for cooperation. And it actually makes it much harder for the group to coordinate on a cooperative equilibrium, once the members of the group are unequal. Because incentives matter when we are interacting with each other. And once we become more unequal, it might be that somebody might just not be able to behave in a way you can, or choose the strategy that you can choose. And so the incentives might differ suddenly. And people sense that and they trust less in the cooperative outcome of the interaction. And so inequality hinders this cooperative equilibria. And we might end up in a place where people don't actually cooperate. But the interesting thing about it is that inequality emerges naturally from evolution as society progresses, and people naturally become more and more unequal. And so exactly like the example on the Western European countries, where the government needs to intervene and make distribution more equal so that people feel a bit more trust in the society. But it also is an interesting point about Japan that it might be that the distribution decisions and the distribution policies in the first place might actually address the inequality and reduce it over time, so that we actually don't even have this problem. So this is one outcome of the work that we're doing is we're trying to understand how to address inequality in the long run in the evolutionary setup. So how can we distribute the outcomes of the group so that even an equal group is willing to contribute. And what we find is that over time, they might actually end up being less unequal. So this will naturally reverse the process that when they arrived into being unequal in the first place.

Rory Cellan-Jones 24:44

Amy, there are two sort of conflicting ideas about the digital era that it kind of levels, the playing field, anyone can be out there having their voice, but it's also a sort of winner takes all society. What's your take on inequality and the social media landscape?

Amy Orben 28:59

Yeah you do have these rich get richer or poor get poor ideas, or the sorts of ideas that

technological inclusion will help level the playing field. And I think for example, I have a PhD student who's done some fieldwork in rural India with young women who have access to the internet. And while it does help level the playing field in terms of economic inclusion or educational inclusion, there's also concerns or conflicts around technology being able to allow them to stay in the home and earn money and so actually making it easier for their families to refuse them to go outside in public, for example. So I think even on the small community levels, as well as the large community, you know, or whole world societies, we're going to see changes in both directions. I think we're still not 100 per cent sure, what the general outcome will be. But I think we need to ensure that technologies are designed to aid the decrease of inequality. And I think there is large concern that a lot of these technologies are made by a very select group of not very diverse people, mostly on the West Coast or in the Global North. So I think thinking about who's making the technologies and for whom, will allow us to at least improve their impact on inequality going forward.

Rory Cellan-Jones 26:26

And that kind of brings me to my final thought, from each of you about looking forward in a positive way. I just want you to imagine good outcomes in the next 20 years in terms of cooperation, to tackle the huge problems we face, and how that might come about. Daniel, any thoughts, any optimistic thoughts?

Daniel Nettle 26:46

Yes, I think so. I think that one thing that technology does is it reduces the cost of creating institutions, simply because the information can be shared so easily. So if you want to regulate a common resource, fishing grounds, or whatever example you want to use, our ability to all know what the others are doing is cheaper now than it ever used to be. Cooperation is very often about coordination. And it's also about mutual knowledge. You know, I know what you did, you know what I did, everyone can trust what everyone else is up to. If we can bypass the sort of hegemony of a few big players who can do everything, you know, I think the network world does have a lot to offer in terms of us being able to create functional cooperative relationships. So there's, I think, some reason for optimism.

Rory Cellan-Jones 27:30

Maria, can you paint a hopeful picture of the future of cooperation?

Maria Kleshnina 27:33

Yeah, of course. I am quite an optimist, so I do believe that humans will find a way to tackle most of the issues we're facing. And we'll do it in the most cooperative way. And I think that indeed, technology is probably one of the instruments that will help us because it allows us to coordinate more efficiently because we know what's going on everywhere. And I agree with Daniel on this point. So we can shape our own social institutions. And I hope that the norms that we are coordinating on are more fair and more cooperative and that we will end up in a better society.

Rory Cellan-Jones 28:13

And Amy, every new technology, from the novel, to the telegraph, to the radio, to the television, has been decried as having a bad impact on society and morals. Go out and do something more interesting than watch the telly is what I was told when I was growing up. Do you see an optimistic view of it, while you still have some caution about it?

Amy Orben 28:34

Technologies are the drivers of societal change and change is concerning for people. And so it's natural for us to have concerns, but then they alleviate a time when video games just become an old technology and we're concerned about a novel one. I think if we move towards a space where the population has agency to design technologies and impact them, and where they feel like they have that skin in the game, and where we bake in safety and collaboration by design into what technologies are rolled out over the global population, I'm sure they will have a net positive impact, regardless of the concerns.

Rory Cellan-Jones 29:10

Well, that's all we have time for on this episode. Thanks to Amy Orben from the University of Cambridge and Maria Kleshnina and Daniel Nettle from the Institute for Advanced Study in Toulouse. Let us know what you think of his latest episode of season two of Crossing Channels. You can contact us via Twitter - the Bennett Institute is @bennettinst - the Institute for Advanced Study is @IAS Toulouse and I am @ruskin147. If you enjoyed this episode, then do listen to our other Crossing Channels editions, notably our recent one on the importance of stories in public debates. And please join us next month for the next edition, where we'll be looking at why we should give children the right to vote.