Brains Stories Ep 1

Wed, 5/5 11:42AM • 39:29

**SUMMARY KEYWORDS**

people, laughter, ucl, working, laughing, cognitive science, voice, thought, bit, talking, comedy, brain, interested, sophie, phd, audience, motor, involuntary, icn, cognitive neuroscience

**SPEAKERS**

Sophie Scott, Steve Flemming, Selina Wray

**Selina Wray** 00:03

Hi everyone and welcome to UCL brain stories. I'm Selina and I'm here with my co host, Steve on brain stories, we aim to provide a behind the scenes profile of the latest and greatest work in neuroscience, highlighting the stories and the scientists who were making this field tech, we don't just ask about the science, we ask how the scientists got to where they are today, and where they think their field is going in the future.

**Steve Flemming** 00:31

And today, it's a momentous an exciting day, because we've got our first ever guest on rain stories. So hopefully are first of many. And we could not have asked for anyone better to kick things off. Then Sophie Scott, who's a professor of cognitive neuroscience, at UCL, and the head of the speech communication group. And she's also currently the Director of the Institute of cognitive neuroscience. So I was wondering, Well, welcome, Sophie, thanks so much for coming on. Thank you very much for inviting me. And I was just wondering if we could kick off by if you could tell us a bit about your background and what your your research is about. So I'm interested in the neurobiology of human vocal communication, basically. So I'm interested in you know, how we control sounds when we make when we do what we do now when we speak or we sing. And I'm interested in how our brains perceive that as well. And I'm interested that's often studied, and for a long time, I studied that in terms of speech, and I've got more and more interested in like the wider world of human vocalisations, because actually, you can consider the human voice to be a really complex sound. And like the most complex musical instruments that exist in nature, it's an extraordinary instrument. And it's quite unusual. There aren't many things like animals that can make the sounds we make. I actually started in biology, my first degree was in biology. And then I wanted to do I sort of learned about psychology and I did a psychology pathway through my biology degree. And I wanted to study music. And it's still don't entirely understand how that hasn't happened. But I kind of feel more recently, I've got slightly more back to music because I've been looking more at the sort of musical aspects of the human voice. Fascinating. So how from biology to running your group at UCL what happened in between there, kind of what's your journey in terms of PhD postdoc, I was extremely lucky.

**Sophie Scott** 02:18

I, I went to Polytechnic of Central London, where they did these sorts of very 1980s modular degrees. So you can do this psycho biology degree with a psychology pathway. And I really enjoyed that. And I was, I didn't really know what I wanted to do next. And one of my lecturers said, Oh, you know, you should think about doing a PhD. And I had never occurred to me to do a PhD. So I went along to the careers office at the Polytechnic of Central London and I said, if I'm interested in doing a PhD, then they said, you can't do PhD. Your Polytechnic is an apply for a job as a research assistant. So I started looking around for job as a research assistant. And one of our part time lecturers was still himself doing a PhD at UCL and what he said all my friend who's always looking for research assistance, he's always going to be grants. And put me in touch with how that UCL MP how had been one of the authors, it's just serendipity. He really was one of the authors on the paper, I base, my third year dissertation, which was on music. And so he was, you know, that was just sheer chance. And so I applied to do a PhD with him. It was out of the normal Ph. D cycle, but some new funding got announced for sort of cognitive science development across this is this is the early 1990s. This is 1990. And cognitive science is quite new, and the Research Council's putting studentships into this new field. So I got a PhD placed at UCL straight out of my first degree, which is very, you know, I wouldn't be able to be I'm very unlikely to achieve that now. And that was it. And I was at UCL, I couldn't believe it. It was brilliant. So after my PhD, and that my PhD, was on speech, because that was what Pete was working on. By then he wasn't doing stuff on music anymore. And so I got kind of moved sideways into rhythm. And I discovered that no one's really funded research into that. I've done a very, very, very, very niche area. And I this new PhD initiative in cognitive science that I did, they put quite a lot of funding into the summer schools that you'd go to every year and and get to lots of different lectures, meet all the other students on the course it was great, actually, from all around the UK. And I, one of those summer schools, I'd met some people working in HCI. And I saw a job that human computer interaction, which is a sort of applied side of cognitive science, and I saw a job advertised with one of the people whose work had been discussed at the Summer schools, and I'd seen him give a talk and I thought, well, I can do this job. I'd kind of know what they do all the technical stuff. I've done all my encoding and that kind of stuff for my PhD so I could do the computational side of things. So I applied for it as a bit of a long shot and got it And that was really good because I had a really happy time I really enjoyed being in Cambridge. And it was a fantastic research environment and just a great place to sort of. It was very collegiate you could get to collect, do lots of different collaborations. And that's when I was there, I started working with Andy Coulter and Andy Young, on patients with deficits in perception of faces, and they were interested Well, did they have a problem with voices and because I had that background, I was able to work with them on that. And I still do that kind of work. And I also got involved in functional imaging, which just kind of getting off the ground at that time. So it was a very good opportunity. And then I came back to London, where the ICN was just starting, and I wanted to at the end seemed exciting. And I worked with Paul Burgess, at the ICN, he wanted someone who could do functional imaging. So I was gonna make any slightly slightly sideways moves, but always getting some new experiences. And that's when I started applying for my own fellowships. And I was very lucky to get a career development award from the Wellcome Trust in 2001, I started building my own lab up from there.

**Steve Flemming** 06:00

So there is I mean, it's such a fascinating journey through different areas of cognitive neuroscience. So we are just interested about the very thing you said at the start where you said cognitive science was just getting going. I was wondering whether you could just like define what cognitive science as a field is, and how, what what was kind of in the air at that time,

**Sophie Scott** 06:20

it was actually very exciting because we've been through the Odyssey long before my time, we've been through the cognitive psychology revolution in the 50s, and 60s and 70s. And cognitive science was kind of a highly formalised approach to cognitive psychology. So there was a lot of emphasis on modelling. And, you know, you you could have your psychological theory or your cognitive theory, save attention, but would really matter is, could you build a model that did that? Could you then tweak the model and see, you know, how that would relate to how different manipulations of an experiment might influence human behaviour. And it's sort of disappeared quite quickly. A few years later, I think because of functional imaging,

**Selina Wray** 07:05

I was just going to ask from kind of my own for my own personal benefit, really, but also, many of our listeners will be based more in kind of cell biology style labs of neuroscience. So on a practical level, how do you study things like vocalisations, and you've talked a lot about functional imaging? Could you maybe give us the kind of very kind of base level description of what that means?

**Sophie Scott** 07:31

So you're absolutely right, people do mean a variety of things. And they say functional imaging, when I say I'm talking about techniques, like initially, what I used was Positron Emission Tomography, and then functional magnetic resonance imaging, what those both let you do, I mean, they're different in how they work, what they let you do is look at new systems, at a systems level, by tracking changes in blood flow that are associated with regional cerebral activity. So when your brain does a bit more work, a bit more blood is almost immediately directed there. And you can track that you're tracking directly with pet by using the radio activity counts to see where the blood is going. And you see it slightly more indirectly with with fMRI, because you're looking at changes in the proportion of oxygenated and deoxygenated haemoglobin that's associated with these changes in blood flow. But they're both telling you the same thing. They're giving you a kind of map of activity in the brain. And it's very, very general. So the smallest resolution is called a voxel. And each of those voxels is picking up even the smallest ones, it's picking up, you know, millions of synaptic projections that is completely at the other end of the neuroscience scale from something that he's looking at cells. So I find it quite useful, actually, because it's, it gives you systems. And it lets you look at networks. And it lets you ask questions about those networks. And you're getting a very general snapshot of that system. So you're not I think that's useful, but you need to know about the other things that are influencing that activity.

**Selina Wray** 09:01

So what are the key questions that your lab at the moment are interested in looking into?

**Sophie Scott** 09:06

something that I'm very interested in at the moment is the the motor control involved in producing vocalisations and how that can vary with the kind of thing that you're doing. So because we've tended to study speech in speech gives you a phenomenally reliable network of brain activations associated with speaking it's so reliable, I could scan one person and tell you where I will see activity in their brain. But speech is just one thing that we do with our voice. And also speech is something that we do voluntarily. And voluntary motor networks are different from involuntary motor networks. And particularly, and that's also we also change our voices a lot we are, I'm talking to you differently now. And then if I was making stimuli for an experiment, or if I was reading aloud, or if I was trying to, you know, tell my son off or something, you know, there's this difference, we actually change our voice. is a lot and we don't understand actually the kind of neural systems that are supporting that variation, and things that influence everyone on this call has been noticing, when there's been echo and things like that. And one of the reasons we noticed that it makes it hard to speak. And there's very, you know, sometimes you change your voice because of environmental characteristics are sometimes you changing it for social reasons, people will talk differently, the more they like the person that they're talking to. So there's actually a very interesting set of factors that are influencing the to the modulation of the voice. And then of course, if you look at something else we do with voices like beatboxing or singing, what are the neural systems that are sort of supporting that? So I think we I'd like to have a better understanding of that. And also, how that interacts with these involuntary vocalisations, I've been very interested in laughter for the past few years. But laughter is very interesting, because it's a social, emotional, it's something lives in conversation. And I suspect that sometimes laughter is actually kind of associated with these older involuntary vocalisation pathways and sometimes much more passive, these kind of voluntary communication networks. So actually getting to the dynamics of those systems is something I'd really like to know. And it's hard, it's very hard to do. Yes, it's really hard to get people laughing in the scanner, but we're getting better at it. And I think it's going to be the sort of motor control networks, I think, are going to be really important for understanding a lot of the kind of complexities of human voices.

**Steve Flemming** 11:22

So just on on laughter, I was wondering, this is a very broad and perhaps too vague question. But do we know anything about the brain mechanisms for laughter like that trigger laughter? Or is that still a kind of unknown territory,

**Sophie Scott** 11:39

it's largely unknown. And that's partly because there's very few people doing it. It's partly because it's really hard to do. So not only is it hard to get people to laugh in the scanner, but also when people laugh, they move a lot. And movement is a real problem for fMRI, you lose a lot of signal. So we've been experimenting with, you know, the highest speed sequences where we can, and if there are technical things that we've been trying to use to get around that we are still left with a central problem that people it's hard to get people to love. So there are there are some studies, there was a study from Germany showing that if you tickle people's feet, if you tickle people and get some elicit laughter that way, slightly alarming thought, from rock machines on filling the defeat, that that gives you activation in the hypothalamus, which you don't see when people laugh to command. So that has to be more to it than that. So for example, those, this is very interesting suppression of motor control. That happens when you start laughing very hard. If you're ever around somebody laughing hard. Or if you're even laughing hard yourself, try and do something fiddly, try and drop buttons on your shirt or something, and you'll find you can't do it. And that's because there is the suppression of sort of spinal control of motor reflexes and postural reflexes. That happens very, very quickly with laughter. So that's that kind of the way that it's overriding other kinds of motor systems, I think is very interesting. And I don't think we have a good idea at all of how that's happening. So when you start laughing really hard, you'll find you can't talk. And we difficult to actually breathe.

**Steve Flemming** 13:27

It suggests that there's a because I know you've talked about this in the past when you've given talks, when you've shown these amazing clips of radio presenters losing control of themselves, when they're laughing, and so on. And it feels like there's self control or kind of higher, the ability to control ourselves laughing seems to be also important. Like, is it possible to do it and and how that works seems to be very interesting as well.

**Sophie Scott** 13:53

Absolutely. And I think if you look at professionals like so corpsing in the theatre, actors getting the giggles, on stage, audiences quite like it, but it's considered to be very bad form. But either professionally, it's not a professional thing to do. And anecdotally, and the plural of anecdote is not data. But actors quite often try and deal with laughter by not letting it anywhere near them before they go onstage. And that's, I think, what people who managed to not get the giggles when they are on the radio, or doing something similar, you kind of get in a mode where you're stopping the laughter even getting thirsty because one of the problems is when it does start to have it on you it probably will make its way through this that clip of James nocatee when he got Jeremy Hunt's name wrong A few years ago, and he then spent there like that he managed to keep talking I think it's about WikiLeaks or something but he sounded like he was having a fight with like a big pig. Yeah. And he was fighting with his on that system. That's what you're hearing is dead and he managed to keep going, but the Absolutely no question, but that there's something wrong and he's like, Oh, I'm, I've got a bit of a cough and not gonna cough. That's not what's happening here. So it's, um, and I think, I think it's why it tends to happen more often when people are in studios with other people. You know, because you're more likely to get the giggles when you are with someone else that when you're on your own, and that kind of thing will feed into it as well.

**Steve Flemming** 15:22

Great stuff. So let's say that you want to

**Selina Wray** 15:23

Yeah, I was about to ask whether inappropriate left, let me see if I can phrase this correctly. Whether this can also be a sign of pathology in a way. So I think about my own field, one of my kind of diseases of interest is Frontotemporal dementia. And we talk a lot about disinhibition in people who are living with Frontotemporal dementia. Now, is this something different? Because it's an involuntary process? Or is it something that, you know, we might gradually lose control our ability to control ourselves in certain disease situations?

**Sophie Scott** 16:00

It's very, very interesting. And we have my PhD students, Shin attended a little bit we did a literature review on this because we actually have quite a lot of involuntary vocalisations. So you know, a few years ago, we had mice in the flat and I was in the flat on my own and a mouse ran over my foot, and I properly screened, I don't even know that mouse did run over my foot. I just thought it had and I screamed, and I screamed for long enough that I had time to think I don't know why I'm screaming, I'm not scared of mice, you know, what's going on, there was a completely involuntary vocalisation. And when it was slippy and icy earlier in the year, I kind of slid on a bit of Alex and I found myself going, Oh, you know that there are the that that's that reactive, that older, reactive vocalisation network at play. That's it working. And most of them are pretty brief. And they don't seem to appear as pathological signs, and the ones that do appear as pathological signs. So they are associated with some frequently, as you say, with like, degenerative disease of some sorts of progressive dementia is laughter and crying, and laughter and crying are actually quite similar. They're not. They appear very early in life, they're actually made in very similar ways. And they both can overwhelm the motor system, and they kind of hang around for a while they don't appear quickly and then go. And there's something about the access that laughter and crying has to the motor system and its ability to kind of override voluntary motor systems or to be disinhibited in some ways you say, that is different from other non involuntary vocalisations they don't sit you don't get people showing, you know, continuous surprise, noises just doesn't happen in the same way. So there's, there's something about the characteristics of those emotions. And maybe it's because they I don't know if it's because they have they have some early access, you know, because they appear so young, or if it's because they are extended on like a sort of fearful sound or surprise sound where you might stay scared, for example, you don't continue making the noise, you know, that the the natural kind of the expression is something that is lengthy. But there's something very interesting going on there. And I would love to know more about it.

**Selina Wray** 18:09

There must be as well a huge amount of variability in how susceptible we are, you know, I think about people in my life who, you know, I some people who are very serious, and I think I bet you've never cried with laughter. Whereas I think I'm quite susceptible. And do do II? Hopefully not on this call. But do we know if there are things may be genetic or otherwise that kind of contribute to to that susceptibility? Well,

**Sophie Scott** 18:41

it's a really good question. we've, we've been trying to look at this. We've been developing, basically a straight down the line, you know, psychology questionnaire, you know, picking out different aspects of people's experiences of laughter. And actually, the biggest one that comes out is how much people think they laugh. So there is a very, very strong, and actually, the dominant source of all the variation in people's experiences of laughter is this extent of how much they think they laughs those people have some experience of being high or low on this measure. It does correlate with other things. it correlates with extraversion and agree ability, which are other personality traits. And extraversion is certainly something that does seem to have a genetic and a neuro physiological component to it. So the more agreeable extroverts think they laugh more, but the word think there's been quite a lot of lifting or few studies there are of comparing how often people think they love with health, and they do love finds everybody underestimates them. And certainly our attempts to validate this questionnaire has shown that although people vary a lot in how much they think they love, they're all still somewhat inaccurate. So everybody's still laughing more than they think they do. So there is something quite different. Testing going on there, there is a sort of dissociation. So definitely there is variation, people do vary a lot in sort of how much they laugh based on again, this is an experience. But I think that might also be because it's very strongly socially modulated, you might encounter someone who you've never seen laugh, but actually, in some other situation that might be laughing a lot. You know, there's the sorts of factors going in there. So it is a, it's a very interesting behaviour to study, because it's very, very susceptible to exactly who you're with and exactly where you are, how much laughter there will be. I can remember when I was a kid, noticing that my father, whenever he was around, his friends that he had a lot of acquaintances, he was a salesman, but he had some people, his friends, he made me become, like kittenish, with his laughter. It was incapacitated almost as soon as the friends arrived. And I don't know how many of his colleagues would ever have seen that, you know. So that just again, plural of anecdote is not data. But it's so there's clearly this variation in people's experience. And it's interesting that it may be more complex in that when it actually gets out to the existence of laughter in the world, I guess,

**Steve Flemming** 21:06

it's quite nice to learn that people laugh more than they think they do, rather the other way around. That's quite a kind of nice fact about human nature. So I just want wanted to bring it back to speech and the over the past year with being kind of in lockdown, and on our own a lot. And you mentioned the motor system and the speech. And I'm wondering whether either, you know, the role of that system in, say, talking to ourselves or in a speech, and whether there's a way to try and get into that, because I've definitely noticed that kind of just being in the house on my own and not going to work, you end up kind of having this in a narrative that starts to kind of build a little bit. And I'm wondering whether there's any way of kind of getting a scientific handle on what we mean by talking to ourselves,

**Sophie Scott** 22:04

it's actually a very interesting area of research. So there's a, there's an argument that says, even when we talk to ourselves, it's still kind of like a conversation. It's not a monologue. It's like you're having a conversation with yourself. And there's a psychologist at Durham University called Charles ferny, whoa, who's he's done something, there's lots of people who've worked in this area, but he made a very interesting point that actually the nature of your internal conversation is very variable, sometimes it feels like a kind of a, like a, he uses the term a frame, like a sort of, there are, there are words associated with this thing, but it doesn't sound like a voice. And sometimes it gets more and more and more voice like, and often that correlates with how emotional it is, you know, I'm walking on the street thinking about something, if I start thinking of Sophie, you know, you'd really cocked that up or something frequently, she almost gets put your I'm saying that last bit aloud, sometimes it's so voice slightly then actually starts happening. So that does seem to be something that's really, it's there, but sometimes very sparse. And sometimes it's much, much more voice like and that's not independent of the emotional tone of that conversation for into a better phrase. So there is it's also got the interesting links to what people experience in terms of vocal hallucinations. So a lot of people hear voices that seem to be different from their inner conversation with themselves, it seems to be qualitatively different. And for a long time, it was associated with psychiatric diagnoses. And it's now becoming clear that for everybody with a psychiatric diagnosis, he who hears voices, there is someone without a psychiatric diagnosis, who also hears voices. And it's very, very interesting to speculate. You know, there's a lot of interest in trying to understand what what does that actually mean? What is it for a long time people thought it was a, it was a monitoring error, perhaps of your own voice? Because of monitoring error of your inner voice? Or is it really some other experience of being more than one voice that you're one of one of them? Is you talking to yourself and then there are other voices going on? So it is it's a very interesting world, this people's in a conversation or monologue and the other voices that might be kind of a background to that is very, very interesting.

**Steve Flemming** 24:18

Yeah, that's fascinating. This idea of kind of the emotions kind of dominating the, the talking to yourself. I guess the phrase kick yourself is kind of like it becomes chastise yourself. And I definitely noticed that when you kind of get to that point where you, you realise you've done something stupid, and you actually, under your breath, just say, Why are you being so stupid? I've definitely noticed that.

**Selina Wray** 24:40

So I had another question kind of move in a little bit away from the science now, but one of the things that we're aiming with this podcast as well as to kind of for people to get to know the person behind the science and one thing that I kind of know about you is you're also a stand up comedian. And maybe you could Tell us a little bit about where that came from. Was that something that started before you started working on laughter as a result of working on laughter.

**Sophie Scott** 25:07

Um, it was, it was actually it was it was a slightly strange journey. So I grew up in a house. My father was a big comedy fan and talked a lot about comedy to see live performances, I grew up in Blackburn and my father would routinely be going to Blackpool to see acts that was seen as a that was a normal thing. So you know, everyone thinks they've got a good sense of humour, and you're allowed to, but I was I was kind of aware of comedy as a thing. And I liked comedy. And I was, you know, always enjoyed comedy is this thing to go and consume. And then I, I was working on laughter And actually, laughter is interestingly different from comedy. And there are, you know, there's a psychology of humour. And it does not quite the same as what's somewhat different in great ways from the different psychology and neuroscience of laughter. So I always just to go to a bit of a body sweat round it, never thought about it again. And then about in 2008, UCL started this new public engagement unit. And part of what they did in that was a thing called bright club and bright club was a comedy night where all of the acts except for the emcee and the headliner, who would be real comedians, all of the acts were UCL academics and students. And when I first heard about this, I thought, God, who would want to do that? Why would you put yourself through that? You know, it sounds It sounds so difficult. salutely terrifying. I was like, and a couple of people from my lab did it. And they did it well. And I was like, Well, you know, good luck to you. I went to see them. Well done. Brilliant. I'm not doing that. I've, you know, I was lucky, I just come back from maternity leave. And I was like, I didn't, you know, I've worked really hard to get where I am. I'm not gonna go and watch it all trickle away in a pub full of strangers not laughing, you know. And I've actually had like, conversations with them about laughter. I talked to Dave, we give people training. And I'd given them advice about laughter for the training that was, you know, I needed the people doing it. And I'm starting to why am I doing that? And also, notably, they hadn't asked me, and then I was at some UCL event with, I'm not going to name him, but it's a male colleague about my age and seniority. A little bit more senior than me. And he was like, have you done bright clubs? Sophie, I did bright club. And it was brilliant. I was very funny. And everybody loved me. And I thought you haven't even asked me, you've asked him and it was brilliant. So I was like, Oh, you know, I'll do bright club. And then they immediately called my bluff on it and gave me a date. And then I've found myself like two months later locked in the toilets, this would have been December 2010, locks in the toilets, with my notes thinking, what have I done? Professional jealousy take me to this mad place. Then I did it. And I absolutely loved it. Not at the time. But there's a point after Jr, come offstage and MC goes everybody. Okay, and everybody starts clapping. And he was like, Oh, this can go on for as long as you want to minister to nucleus accumbens, you know, this is, this is definitely the good stuff. And I thought, you know, I want to do that again, and I want to get better at it. So I found it very interesting. As you know, it was 44 when I first did it, and I kind of think, well, this is how things are, this is what you've gotten out of this is that you're not going to learn anything new. So it's been very interesting to learn a new skill, but it did also teach me a great deal more about laughter, and audience laughter and the way that laughter is used communicatively than I'd ever realised, they used to think that people, you know, watch lots of comedy, but I sort of thought that, you know, the comedian is doing something on stage. And then the audience are reacting. But it's much more of an interaction. It's much more like a weird conversation. And it's kind of coordinated by the comedian, but it's definitely there, the audience sort of starts to coordinate their responses, there is much, much more complex than I'd realised. And I would never realise that or even thought about it in this I'd actually done stand up. So I would say definitely every opportunity, and I wish you see I would start bright club again, because, you know, we've had a lot of really people that Hannah fry, my downtek, Kevin Fong, they all came via that route, you know, and it's been really, really positive thing for science and public engagement in the wider, wider world. There's a reason why we've had quite a lot of one institution Christmas lectures, for example, I think it's because people come via that route. And I wish they'd start doing it again, because it's a fantastic opportunity for people. It's good public engagement, but it's really good for it's a really good opportunity for staff and students. Basically, if you want an opportunity to really feel like you can own a room, do stand up comedy training. You'll feel like you can do anything after you've done that.

**Steve Flemming** 29:26

That's fascinated about that interaction between the audience and the and the comedian because I've found that when I've been trying to watch some comedy on TV during lockdown on Netflix, for instance, he just he just kind of think to yourself, I want I went to watch that comedian live and it was fantastic. And now on Netflix, it's just not quite there. And it just it just makes a lot of sense that this kind of interactive aspects of being in the room.

**Sophie Scott** 29:52

Absolutely. And I know I've done a few gigs on zoom. And it is really interesting. Not only can you you You sort of have to do it a set to a blank screen. You can't hear the audience laughing. And it's very, very distancing, you kind of know it's happening, and that the event is happening. But there's no sense of actually having done a performance. It's very, very strange. You know, you don't get that when can meet with found we did a study a couple of years ago showing that if you add laughter onto the end of jokes, people find the jokes funnier. And when I said that to a comedian, his immediate response was, Well, yeah, if I can hear the laughter, I become funnier, you know, so they are affected by the audience and then start shining more. So it's, it's a virtuous circle, in a normal environment, and we take a little bit away in this current situation will almost all of it and becomes very hard.

**Selina Wray** 30:41

I'd never really thought about comedy being a conversation with the audience in that way. But it makes total sense. Now you said it, and I lived in Edinburgh for a few years. So of course, went along to the festival. And you could see the same show two nights running, and it will be completely different based on who is in the audience. It's really fascinating. But I think, you know, your experience of bright colour has clearly been an amazing what would you say that you think anyone can do that, or anyone can learn to do that? Because it still sounds terrifying, to be honest, is absolutely terrifying.

**Sophie Scott** 31:15

I mean, I think one of the things that they were finding when they were running bike club regularly was that they'd made because the Brian Cox effect, they could get lots of younger males, physicists, that you know, and, you know, chemists would be would be relatively easy to recruit them. And it wasn't difficult to get people from the humanities, I think they were, you know, they were role represented. It was harder to get scientists and particularly female scientists, who would like to have my reaction, like know, why am I doing that sounds terrifying. But I do genuinely think anybody can do it. And I think the more likely you are to think that is not for me, the more you absolutely should do it. You know, you because you will actually think the worst thing you can do with something like, stand up comedy training is think, well, I am hilarious. And this is going to be brilliant. So So the best standard ones I've seen have actually been people, you know, audiences, the audience is now what they're getting there in London, they don't, you know, they wanted to go and see jokes, they can go to someone telling jokes, they want to see scientists, academics, talking in a humorous way about their life and their sense, you know, and it's, it's actually, any buddy, anybody at UCL would be a perfect to do that. It's that, you know, it really is, and it's a learnable skill, it doesn't sound like it is absolutely learnable.

**Steve Flemming** 32:36

So Sophie, one other big part of your role at UCL is being Head of Department of the ICN. And I was just wondering how you found that over the past year in the pandemic, with everyone working remotely. And this, I guess, a responsibility of keeping people motivated and engaged. When we've all been distributed around the world.

**Sophie Scott** 32:59

It's, it's actually very hard to be I don't know the thoughtful about this, because it was I'd only been head of department for six months before we went into the fully into the lockdown. So the majority of my time being directed at the ICN, we haven't been in the ICN. It's very strange. If I go back to my emails now from a I found it difficult when we were coming up to the the anniversary of everything starting to speed up really quickly. And all the changes happening very fast. We go back and look at my emails from that time, I started sending out regular emails to everyone. Just to say this is what is happening, this is what you need to know, you've got to go home you can't come in this is what you need to come in is what we have to do that kind of thing. And I carried on doing that daily. So I've done a daily update, except when we've been on holiday and when I COVID for the benefits for over a year now. And that started as a way for me to deal with my anxiety. I was fine. It was really scary at the start. And I was finding it hard and sort of sitting down and sending an email giving people information, putting in you know, we were sharing films to watch music to listen to and stories and birds would see them that kind of thing. And that started as a way to as a safe really for me to manage my anxiety. And then I thought well, it's also now we're all kind of getting thrown all around the world people remember people were told to go home if they would ever students from abroad. Yeah, so I thought it really actually matters, we begin to get through this. We all we are is the community, the building doesn't matter. It's the people that matter. So I kept on doing it even when I stopped being completely anxious on this daily basis, just so we have this kind of way of touching base in a way that we would be doing it by normally if we were all in the building. You just say hello to people when you saw them and we haven't got that. So let's keep that going. And we kept. We have daily tea at the ICN during term time organised by different research groups each week. And we kept doing that virtually. And we had parties, quizzes and things like that. Just anything to kind of give people a daily touch base and then other events where we can I get to hang out if people want to come along on a very small scale like tea or a bigger scale for, like quiz nights and stuff like that. I think I think it does matter. I think it is. So many people were isolated, particularly students or young people who were in London and didn't have family here and couldn't get home. And then we're stuck in a room on their own for a year. That was, you know, that was very much who I was thinking about when I was thinking about just staying in touch with people because we, you know, it, I can't begin to imagine how difficult that is that sense of isolation is, at least I was in lockdown with my, you know, my partner and our child.

**Steve Flemming** 35:35

Yeah, it's definitely made me reflect on I guess what, like the university what the community means. Because when, when things like all talks online, and when lab members are distributed around the world, it kind of what does it What does it mean anymore to kind of go to UCL and give a zoom talk, for instance, rather than going to say NYU and giving you a zoom talk. And so I'm just wondering whether, is there? Have you seen any silver linings of that, like kind of what he going forward, even if people maybe have more working from home and working remotely? Is there a way of kind of, have we learned lessons about rebalancing a bit in the future, but still keeping community together?

**Sophie Scott** 36:13

I think I'm very, you know, grandstanding why people could be thinking, looking for positives in help things we can take away from this. But I think the thing I've really learned is that so many things are easy to manage when people are in the same building. Like when there are problems, and there's issues, it's really hard to deal with those on email, or on zoom, or on teams, you want to sit down with someone or go and grab a cup of coffee and have a chat, or just touch base with someone really quickly make someone you know, it's very difficult to say for their professional services, people who've been stuck at home doing their job continuously, not that making sure that they feel like they're valued, is easier to do when you are all in the same building. And that's that kind of sense of a community. I feel it's you can see elements, there will probably some things I will probably keep to mute sort of keeping people updated. In a way, I think there were lots of issues around transparency, that, you know, I knew stuff was unique that everyone knows that, you know, but which I didn't do before. And I think that would be something I would take forward. But I think for, for a really happy and productive community of researchers, and everybody in the students and everyone, it really does help to be in the same place and sort of, you know, share the breath in the room together. And

**Selina Wray** 37:29

definitely anything, we can all hopefully start to feel a bit optimistic that that will return sooner rather than later. Now, fingers crossed anyway, it's good to overlook, we're almost out of time. So we're probably we're gonna need to wrap up this discussion. Thank you so much for such a wide ranging conversation on a lot of topics, Sophie, and before we finished, were planning to ask each of our guests the same question. And which is what is your favourite fact about the brain? Hmm.

**Sophie Scott** 38:02

Favourite fact about the brain

**Selina Wray** 38:03

and your first guest so that you've got them all to pick from?

**Sophie Scott** 38:07

Okay. It's very big. It doesn't give up its secrets easily does it? I think one of the things I'm most struck about the brain is the other so much to love, but the the sheer sort of flexibility and plasticity of it the fact that we learn so much in during our brain development as children and young adults, but then the fact that that, that plasticity remains possible, or elements of it throughout your entire life, I find quite extraordinary, and that the power of that plasticity to adapt, I mean, you know, we adapted really quickly to living under COVID situations. And that was entirely down to our brains. You know, it's sort of stunning how adaptable humans are. And that is, a lot of it is to do with our brains adaptations. And I think that's, that's kind of incredible. We've sort of probe with it with our little tools. But actually, if you take a step back and look at it as a system in action, it's quite extraordinary.

**Steve Flemming** 39:10

Well, that seems like a perfect place to end it. So thank you so much, Sophie for a fascinating discussion. And thank you, everyone, for joining us on this episode of brain stories and we will see you next time.