Dr Juliet Webster

Interviewed by

Jane Bird

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Via Zoom

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Welcome to the Archives of Information Technology where we capture the past and inspire the future. It's Friday, 15th July 2022 and we're talking on Zoom, as has become customary during the coronavirus pandemic. I'm Jane Bird and I've reported on technology and the IT and telecoms industry for newspapers such as The Sunday Times *and the* Financial Times *since the early 1980s. Our contributor today is Dr Juliet Webster, Director for Work and Equality Research in London and Adviser for the Gender and ICT Programme, IN3 at the Open University of Catalonia. Juliet's research addresses the gender dynamics of job automation and digital labour and how they've evolved since people began using computers in the workplace. Topics she has examined in her many academic papers include virtual work, the gig economy, equal pay, people skills and social sustainability. Her career has spanned academic research, practical action in NGOs and policymaking, including for the European Commission Directorate General for employment. Juliet is also an active member of a community support group for the resettlement of Syrian refugee families.*

Juliet, welcome. I'm very much looking forward to hearing more about your research in how computers have affected and continue to affect our working lives and to gain insights into the future of connected technology in employment. So, perhaps we could start at the beginning, how was your childhood? Did you have a happy time?

Yes, I did. I was, I moved around the country a fair bit as a kid So, my schooling was very fractured and I- however, that's meant that I've lived all over the place and have continued to live all over the place as an adult, and I've got used to, I suppose I've got used to travelling. So, I've never been fully settled. My father was a fairly middle class guy, the child of a post, a sub-postmaster who educated himself largely after the Second World War and got his PhD part-time in the evening, through evening study, independent study. And my mum was the, part, or was a member of a refugee family who came from Germany to Britain in the 1930s. And she later worked as a secretary all her life. So, I come from a sort of middle class, fairly conventional, I suppose conventional in the occupational sense, background, not conventional in the ethnic sense. So, I come from a very scattered family because on my mother's side, which is the big family, everybody is in a different country. On my father's side there's almost no one. And I guess that had an impact on my childhood because it meant there was

no direct family in the UK apart from a grandfather. No aunts and uncles, they were all abroad. What else can I tell you? Would you like to know about my schooling?

[00:04:00]

I would, yes. I mean you were state educated, I think, weren't you?

I was, yeah.

Yeah. So, how did you find that?

Well, as I say, as a smaller child, in primary education I was moved around the country all over the place, So, I think I went to something like five or six different primary schools. I was settled by the time I came to secondary school, but I have to say that my secondary school was not greatly inspiring and I didn't, I didn't perform very well at school at all. And in my defence, I've actually in later life met somebody who I was at school with, at secondary school, and this is – I now live in London – and this friend of mine lives not very far from me in London, but we didn't go to school in London, we went to school in the home counties. And she has exactly the same perception of the school as I do. And in fact I met somebody else in adult life who went to my school and she too had the same perception. There's a small group of survivors of my school who all have the same – that I'm still in touch with – and we all had very much the same experience. We weren't, we weren't super-inspired by school, I would say. It was a school that was very intent, I think, on getting people into university, preferably Oxbridge, and if you didn't particularly show an inclination to study a fairly mainstream set of subjects or go to university they weren't particularly interested in you. My great love at the time was drama, a bit like one of your other interviewees, I think. I seem to remember that one of the people, one of the other women you interviewed, also loved drama. She said, I think she said that she didn't excel at it, and I didn't either, but I loved doing it. My school didn't offer anything along those lines, no drama at all. I started a drama club myself at school. And I did classes as a teenager in one of the drama schools in London, Saturday classes, loved all that, and had it in mind to pursue a career in drama if I could. But I don't think I was that good and I think you have to be good and lucky. And when I

was advised then by my careers adviser at school, who was also the history teacher, to not really consider a professional career, go and be a secretary, I went off and did a secretarial course. I couldn't see any other option, avenue open to me, and my parents quite rightly said to me, at least then you've got a way of earning a living if you decide to pursue drama and it doesn't work out.

[00:07:00]

Yeah. And So, you hadn't really at that stage had any mentors or people who were going to have a great influence on your life, by the sound of it?

No. No, absolutely. No, absolutely not in school. I had an adored English teacher who unfortunately didn't stay long in the school. She joined, my memory is that she joined at the beginning of an academic year and by the end of maybe one or two academic years she decided to go and go to the school across the road. And she really was inspiring and I think I would have, I think I would have taken slightly different studies if she'd stayed, I think I would have pursued English as a study subject at A level. She wasn't, sadly. So, I did language A levels because I was reasonably good at languages, and then left school and went and studied for secretarial work.

And So, you… and by this stage, presumably you had not had any direct involvement or experience with computers or work technology?

No, I'm too old. There were, I think, almost no computers in the workplace. When I did my secretarial studies we learnt to type on electric typewriters, So, at least that was something, but there were no word processors at that stage. They weren't far away, word processors arrived in the workplace five years later, but at the time when I was studying it was still shorthand and typing on an electric typewriter and various other things. Office organisation, communications, business studies, those were all modules within the private secretary's certificate which I took.

Yes, the electric typewriter had rather a short life really, didn't it, in the end?

Yes, it did. Comparatively. But it was already, to my mind, a huge advance on a manual typewriter because it didn't involve you having super-strong little fingers to press the keys at the end of the keypad – at the end of the key**board** I should say. Electric typewriters were So, much easier to use. And then along came the electric typewriters with correcting ribbons built in, which were an absolute godsend.

Ah, well I was a journalist at that time and we didn't have any such luxuries, we typed on machines that you had to do that…

Yeah, right.

[00:09:36]

But, So, you did A level sociology, you discovered that you did have an academic leaning after all, didn't you?

That's right, yes. Here's where the mentor came in. I did. I decided I wanted to take an extra A level while I was doing the secretarial course at college. I thought it would be nice to take an A level in something that wasn't available to me at school and my mum had tried to and not finished a social science degree at the Open University. And just from comments that she made and remarks and her perceptions I had the feeling that this was a really interesting, potentially interesting subject of study. I was very drawn to it, I don't really know why. So, I decided to take an A level in the evenings at college while studying shorthand typing, etc, during the daytimes. And for me the kind of, the big turning point, the decisive moment came when I went back to an office where I'd worked for a summer job one year on leaving school, and happened to say to one of my friends there, one of the members of staff, I'm really loving this sociology, I'm wondering about, you know, I just really adore it. And he said to me, So, why don't you go to university and study it further. And I can remember saying, oh, I don't think they'd have me. Because my school had drummed into me the notion that I would never get into university. So, I said, I don't think anyone would have me. And he said, of course they would, go on, try, apply. I then remember going back to college the next day and breezily saying to my friends, I think I'll apply to university. And they all – this was in the days of UCCA forms –

and they laughed and said to me, well, you'd better hurry up because UCCA applications close on Friday and it's Wednesday now. [laughs] So, in the two days I got hold of an UCCA form, stuck various pins in maps, picked five universities and applied for them and got my application in. And ended up going to Bradford University to study social sciences. I chose Bradford partly because I really liked the content of the course on offer and partly because I wanted to live out of London and live in the north of England. I'd kind of seen the north of England in drama representations, kitchen sink dramas, and I was quite intrigued by how different it was from what I knew and I wanted to, I suppose it was the sociological interest again, I wanted to live somewhere that was completely different from what I'd grown up in.

[00:12:27]

And was university a wonderful experience?

Yes. Absolutely. Bradford was good because - and my course in particular was good - because very many of the students were mature students, it was good at taking mature students and students from non-traditional backgrounds. And that meant, I think, that the students I was studying with who were my peers in my course were very serious indeed about what they were doing and it made me very serious too. I found it So, stimulating being around people who'd experienced the world of work properly and made an active decision to come back into education. I had some wonderful, wonderful tutors, really wonderful, and the course that I did focussed on the world of work and industry and it just, it just gelled with me. I loved learning about work, industry, industrial relations, industrial technology, industrial change. And that's what the social science degree focussed on.

Yeah. So, you decided to stay on and you did a doctorate as well.

I did.

So… Yeah, carry on.

Yeah. So, I moved out of the social sciences department and into an engineering department to do my PhD. Part of the reason for that was that grants were in very, well, I was going to say they were in very short supply in social sciences, they were almost non-existent, it was extremely hard to get what was then a social science Research Council grant, very, very hard. And I don't think there were any attached to my department, social sciences. There was an engineering Research Council grant attached to an engineering department that I applied to and I applied for the grant and won it. When I say it was an engineering department it was actually an interdisciplinary department that at undergraduate level taught students a mixture of various engineering disciplines and technical stuff and social sciences in relation to industry. So, the students would be learning how to become engineers, but they'd also be learning about the social context of production and work and they'd be learning industrial relations and they'd be learning about how workers experience the world of work. So, they got a grounding in industrial sociology as part of the undergraduate programme, and that same interdisciplinarity was reflected at postgrad level as well. So, there were a lot of engineering postgrads in that department and I was one of the few social scientists, but there was this active effort to bring more social scientists in and to try and create a department that had a real vibrant dialogue between the different disciplines, and I think it was a really path-breaking department and degree programme that I was quite proud to be attached to.

Yes. Yeah. So, you then decided that the academic life was the one for you?

Yeah, I did. I really love doing research. I think, you know, I got the appetite for it in my first degree, doing my first degree, and I felt I just really wanted to dig inside the question of what was happening in the world of work. Bearing in mind that I was going through all this just as the first computers were starting to hit the workplace, the early 1980s, and the microelectronics revolution had taken off in a big way and computers were just starting to be introduced all over the place, and word processing in particular, one of the early forms of computing in the workplace.

Yes. And that was, So, you were starting to get an interest in technology specifically, were you? That's been…

Yes, I was.

[00:16:56]

Yeah, yeah. So, what sort of drew you into that and what were your sort of early thoughts about it?

Well, I think what drew me in was studying, studying the sociology of industry and industrial relations and as part of that study having to go back into literature like *Capital*, Marx's *Capital*, and look at how he was writing about the labour process and the introduction of machinery into the workplace in the 19th century. All very fascinating stuff and then that kind of thinking being picked up then later on by other thinkers. And I was really interested in what kind of resonances that work had for the automation of the workplace in the 20th century and you could draw lessons from the mechanisation of the workplace to the automation of the workplace. Yeah, So, that's really what drew me in to the whole subject matter. And by the time I got to do my PhD I was in a department where technology was very much central to what was being both taught and researched, So, the technology department, so-called, where I did my PhD, technology was central. So, you know, oftentimes when you're doing a PhD you spend quite a lot of time thinking around a subject matter until you find the topic that you want to home in on and focus on, and So, it was with me too.

Yes.

And So, I was initially just reading around the whole area of technology and machinery and then technology and computers in the workplace and trying to, I think, hone my subject matter down through that reading. And at about the same time I was drawn into an activist group in West Yorkshire that was assessing the introduction of computers in workplaces in West Yorkshire and their implications for women. So, it was a women's group, basically, a feminist group that was looking at and publicising the impact of new technologies on women's work, and that work, the activism that we were doing included teaching WEA classes – Workers' Educational Association classes – to women and to trade unionists about the spread of computers in workplaces and their implications for women workers. So, that also kind of helped

me narrow down and focus my own research attention. And then my own personal experience was – and I think this is true of many researchers, and more research perhaps than we often acknowledge – that personal experience is hugely, hugely important in shaping the kind of priorities, research priorities, research focus that one has. And I felt it was important to be very upfront about this, because I think it shapes not only the subjects we choose to focus on, but the ways in which we study these things.

Yeah.

It certainly helped having personal experience of working as a secretary to be able to then look at what word processors were doing to secretarial work.

[00:20:43]

Indeed. So, what, at that time then, what did you, did you foresee that things would come out as they have, or presumably it's been an evolutionary approach where things have happened, change has come about gradually and you've been, how much have you been predicting it and how much have you been reflecting on it?

Well, when I think, I don't think I did anticipate what has happened in the last few years, I certainly didn't anticipate things like the internet, and I don't think I also anticipated the kind of growth of, let's say consumer labour that has displaced So, many jobs that a lot of women did in the last century. So, my thinking tended to be that what was- my thinking was that what was critical to the impact of computerisation on women's work was the way in which the workplace was organised initially when the computers or word processors were introduced. So, in other words, a lot depended on the nature of the job in question. There was a huge, huge difference between, say, secretarial work which involved a whole number of other functions that were not technical, that were much more to do with service work. One might also say women's work, women's work in inverted commas. A lot of secretarial work was stuff that actually in the home would have been done by a wife.

Such as?

Oh, well you know, taking the boss's shirts to the cleaners and buying Christmas cards and presents for the family, that kind of thing. Domestic labour, basically. So, you had that kind of thing. What you also had, I think, in secretarial work was a huge amount of what we would now call managerial work. So, secretaries, I think, were hugely downgraded and were doing often work that was, that now I hope we would acknowledge was a lot more responsible than they were ever paid for or valued for. That was on one hand, that was the kind of high end of women's office work at that time. And the low end, if you like, was the kind of typing pool. And So, the introduction of word processing in those two areas was hugely different because typing pool work was already much more routinised, much more routine, much more repetitive, less varied. And word processing augmented that routinisation, accentuated it, reinforced it. What I didn't anticipate and what's happened since, I think, is that really the whole secretarial function has largely been eliminated by displacing the labour onto [laughs] actually higher paid staff. And I think the economics of that are intriguing in a way. It may be one of the things that accounts for the so-called productivity paradox. And typing as a function, as a sort of dedicated function has also largely disappeared. So, and I don't think I anticipated either of those developments.

What was the title of your doctoral thesis?

I think it was called something like 'The Impact of Word Processing on Secretarial and Office Work in the UK'.

Yeah.

But I could double-check that.

[00:24:31]

Okay, So, then after, So, how about your sort of, So, from that you had lots of roles, academic roles in the years that followed, didn't you?

Yeah, I did, yes.

In various, Edinburgh University, you know, in East London University and then in Brussels of course, you had a lot of roles. So, just sort of looking, casting your mind back over that part of your career, those stages of your career, what were the sort of key milestones and turning points, would you say?

Well, I think the Edinburgh, the position at Edinburgh was a huge milestone because I was working with a superb team of researchers in a national research programme of which, in which there were six universities, Edinburgh was one of those. And the research programme was called the Programme on Information and Communication Technologies. Each of the six universities had a different focus on that work, on that area and Edinburgh's focus was on what was called the social shaping of technologies. So, what we were doing there was taking issue with the idea that technologies develop independently of, you know, of the societies within which they develop, that they develop along purely technological trajectories and they develop according to the most technically efficient solutions that are found and they then have impacts on society or on people. So, that was the kind of prevailing wisdom at the time and in Edinburgh what we were trying to do was to present, and what we did do was to present a very different view in which technologies developed because of the, precisely because of the social relations within which they were situated because of political agendas, because of economic programmes, because of social relations of one kind or another. And they didn't, So, they didn't So, much have impacts on society as a rise out of social relations and they were then in some kind of mutually shaping dynamic all the time. So, you know, they're much more interlinked, I think, than the idea of an external technology would suggest, an externally generated technology. We were trying to, yeah, we were trying to bring those two social forces together as one.

Is there a kind of meaningful example of what you're talking about there?

Well, I think there are lots of examples. One of the ones that I particularly remember came out of a text that was co-edited by one of my colleagues at Edinburgh, Donald MacKenzie. The book was called *The Social Shaping of Technology* and in one of the

chapters there's an example of the bridges that Robert Moses built over, on the access roads, the interstate highways to Jones Beach on Long Island. And this is kind of topical at the moment because Robert Moses has received a bit more attention again recently, and in fact there's a play about him currently showing in a theatre in London. And Robert Moses was a New York town planner, a very powerful planner, who worked in New York from, I think, the 1920s to around the sixties, or possibly even later, and he was responsible for building a lot of expressways in and around New York and up to Long Island, and for knocking down whole areas of the Bronx as well and running roads through. He decided that he did not want Jones Beach, which was a very pleasant beach on Long Island, to be accessible to certain social groups. He wanted to open it up for leisure, but he didn't want the riffraff getting there, So, he built the bridges low enough that buses, public buses couldn't get underneath the bridges. Now you, if you looked at – that's an example of a social shaping of technology – you could look at those bridges and assume that they were low for simply technical reasons, but actually there was a social agenda behind their height that gets forgotten until you remember the motivation behind building them that low. Then there are other examples actually in the same book, which is stuffed full of really interesting examples of things like the way in which the gas fridge was gradually superseded by the electric fridge, not because the electric fridge was necessarily technically better, but because the electricity network industry started to put enormous lobbying power into action in order to get electrical fridges developed and taken up. I think, you know, you could give the same example with regards to trams and cars, the way in which trams were hugely lobbied against by the car industry, incipient car industry. And So, on and So, on. The… you get competing technologies where one fails and another succeeds, which oftentimes turn out not to have failed because they're necessarily inferior, but because of the lobbying power or some other manoeuvring that's going on by the emerging industry, if you see what I mean.

[00:30:24]

So, would you pick out Donald MacKenzie as one of your mentors or sort of sources of inspiration?

Very much, very much so, absolutely.

Any others that you'd want to mention?

Yes. When I went to Brussels to gender-proof some work that the European Commission and a group of experts were doing on the information society – I say gender-proof, what I mean is, I was invited over to work in the European Commission and help the expert group think about the gender dimensions of the information society and how their policy recommendations might pay attention to gender issues – and the chair of the expert group was an economist called Luc Soete, a Belgian economist based at Maastricht University, who I again found hugely inspiring, one of those people who's able to master a huge number of different subject areas, seemingly very easily. I'll just hold up this copy- this is the report that the group produced. It says *Building the European Information Society for Us All.* And what I think was valuable about that and helped my thinking a great deal was the remit of the group was to cover the spread of information technology across a whole number of social policy areas. So, we were looking at, we were looking at employment, we were looking at work and work organisation, training, education, the labour market, social cohesion, health, culture, media, democracies. You know, a very wide area, social area, and that for me was, that for me was really decisive because it not only gave me an understanding of how information technologies potentially engage with societies in almost all areas, but it also gave me a very strong insight into policymakers' concerns at European level and what were likely to be the then emerging policy priorities at the time, and particularly with regard to gender. And that led straight on to me then being able to do a large, and I think very well regarded, piece of research across a number of countries, looking at exactly how the spread of information technologies was affecting the work of women in very low-grade jobs in services. And the question that we were intrigued with and that the European Commission was particularly interested in was, were women in these kind of low-grade jobs, and I'm thinking here about some of the more repetitive aspects of banking and financial services and some of the more repetitive aspects of retailing, So, that kind of service work, and where these jobs were being computerised, to what extent were the women who did them being offered opportunities to upskill and progress in their work to better work, or were they simply being displaced. And we did quite a detailed set of long-term studies, longitudinal

studies with women in eight countries in Europe, to look not only over time, but across countries, over distance as well, to see how countries varied from north to south and east to west, basically.

And what were your sort of main conclusions or findings from that?

Well, ah-ha. That was difficult to put simply because, not surprisingly, different European countries are vastly different from one another. But we didn't see, I'm afraid, too much evidence of women progressing as a result of these, of the introduction of these systems, even in some of the better countries like the Nordic countries. What tended to happen was that certain countries like Britain, and to a lesser extent the Republic of Ireland, were rather eagerly adopting what we might call sort of US models of capitalism, shareholder capitalism, and actually I think that's, that process has certainly been continued and extended since we did the research. Models of capitalism in which workers were not trained particularly or given new skills, but rather the training that they received in using the technologies they were using was very job specific, very limited indeed, it was simply in order to do the barest, the barest minimum. In certain sectors what was more important was the application of what we might call a smiley culture, where people are being trained to say hello, offer help, say goodbye, greet and smile, show empathy in a conversation. Call centres were just opening up at the time and they were a huge, huge area of academic interest and a lot of call centre work in the early days was dominated by women and yeah, their work was highly proceduralised, it was highly scripted and the training that they received was around things like showing empathy and, you know, holding open and closed conversations and knowing when to close down a conversation and each interaction with each customer was very tightly timed. So, what we were seeing in effect in that kind of work was in a way a sort of a white collar factory. And those kinds of technological developments have spread since that work was done. So, I think what we've seen now is the demise of craft-based work in these sectors, which did exist in certain countries. I think, for instance, of Germany where if you worked in retailing you did a three-year training course, which included things like merchandising and included sort of artistic elements like learning to display goods, none of which you would receive in British retailing. So, different

countries were very different, a lot depended on their industrial traditions. But the picture I think, on the whole, has not been terribly optimistic.

[00:37:45]

No, no indeed. Well, So, just sort of running through your research, So, that was all happening sort of in the mid-nineties, I guess, was it?

It was, yes. Mid-nineties, yeah.

Okay. And So, then how did your research sort of evolve? Obviously continued along the gender lines. Did you also start looking at internet technology as it came along, what was the sort of pattern of evolution?

Not So, much internet technology, but I then started to do more work on computer science and women's work in computer science, alongside other research around other areas of women's work. So, I was doing work on equal pay at the same time, I was doing work on job evaluation schemes and I was doing consultancy for the European Parliament. But I was sort of gradually transitioning into looking at the under-representation of women in computer science professions and I did a large project with another European research group, again, comparing different countries and trying to understand how women who did have careers in computer science of one kind or another experienced those careers.

Yeah.

We were very interested in the culture of the sector and the culture of the computing workplace as it was then. So, we did a lot of work in software development, women's work in software development [inaudible 39:32] as it was then. So, sectors where computing skills were paramount and women were mostly highly under-represented.

It's not, I mean women, arguably women were more likely to have careers in computer science or in computing in the sort of seventies and even eighties than

subsequently, weren't they, acquired a sort of anorak image, didn't really appeal to women.

No, that's exactly it. And in the early days of computing, computers were women. The word computer referred to the women in the very early days of computing and of course, you know, there are So, many very well-known examples of key women software developers, from Ada Lovelace onwards, who, you know, who women computer scientists and feminists working in the field know very well, but they're not very well known generally, I think. So, it's absolutely true. And in the Second World War of course, women were computer scientists in number and worked in Bletchley Park as codebreakers, for example. And worked on the development of the Manchester University computer in number. But, yes, something seems to have happened that, as you say, conferred an anorak kind of image on the world of computing and women, partly I think because of that left, but as my subsequent research has tried to show, I think women also disappeared out of the field because of the working conditions in computer science, it became a field in which you needed to be prepared to work very long hours, it made family life and domestic labour very difficult to reconcile. You needed to be able to work off-site sometimes and work in a client's premises for prolonged periods of time if you were going in and, you know, installing software systems, for example, or troubleshooting. There was a real long hours culture in computing in the sort of 1990s and 2000s and onwards that was very discouraging to a lot of women. And I did some subsequent research with my colleagues in the Open University of Catalonia in which we looked at the life course of women in computer, working in computer science jobs and tried to identify the reasons why, even if they entered, those who entered, the minority who entered dropped out and at what points in the life course they dropped out. And what we found was that they dropped at at two key points in their working lives. One was on maternity, that was the first stage at which women left computer science in their droves. And then the second point was in mid to late career, round about the time when they were kind of seeking to consolidate their careers. And it's never been entirely clear to me from doing the research quite why women drop out in number at that second point. I think the first, that first break point it's quite easy to see why a computer science job is incompatible with having primary caring responsibility for children, and at that point – and I think it's changed – but at that point I think women

still did. To a certain extent what happens in mid to late career is that women then become part of the kind of sandwich generation, they start having responsibility for care for both elderly family members and the succeeding generation, sometimes teenagers, their teenage children. And actually, that's almost a more difficult point in their lives because those women who have children who are now of teenage, are teenagers, they can be, they can require just as much care as smaller children, it's largely unacknowledged. And, you know, we know only too well that the care sector is threadbare in very many countries and particularly So, in Britain, and that means that a lot of care work falls on the shoulders of principally women family members who do it as a sort of part of an invisible labour. And I think that just then makes again a demanding job that requires a great deal of personal time and out of hours working very difficult to sustain. And in a way I think the internet has exacerbated that whole process, because it makes being on call and on duty and online So, easy twenty-four hours a day, it just makes the demands of workers in general almost relentless.

[00:44:47]

Yes. So, other, what aspects else have you studied that we haven't talked about? There's the gig economy, isn't there?

Yeah.

Such a big thing. I mean just trying to track kind of fairly logically through your amazing, I mean the number of research papers you've published, I mean I couldn't begin to count them, there seem to be hundreds, So, you're obviously incredibly productive, but was there a sort of a natural evolution there and have we followed it, where does it go to next? Have we missed anything out?

Well, as far as my career's concerned I was then lucky enough to be involved in a European research network which was looking at the dynamics of virtual work. And by virtual work was meant a whole range of things, but it basically referred to any job that was mediated through the internet or that involved working on the internet or on

communications technologies. So, it was quite widely defined, the dynamics of virtual work.

What year are we in now, sorry?

We're now in 2012. So, we've come forward to 2012. At this point I was still working in the Open University of Catalonia and this European network, which was chaired by Ursula Huws who was then at the University of Hertfordshire, involved representatives from, I think something like, I can't remember, something like forty-four countries, So, European member states plus. And what we were all doing was focussing on a different aspect of virtual work. And I, that research network had various different working groups and the working group that I was looking after was looking at newly emerging occupations, virtual forms of virtual work. So, you know, things like influencers and content farm workers and, yeah, gig economy workers. But I was particularly interested in and looking at the conditions of work for micro-workers and the sort of the gender dimensions of that. So, micro-workers being like people who get their work online through a platform, bid for their work online through a platform, get it, perform it and then deliver it back. And often, you know, for instance, Amazon Mechanical Turk Workers, or upworkers, people who are working, you know, who get their work virtually, perform it virtually, deliver it virtually. And often the work can be very, very tiny tasks indeed or very tiny repetitive tasks. You know, tagging photos for websites, that kind of thing, organising people's filing system. But online work of that kind actually encompasses a huge range of different potential occupations, you know. So, it can range from quite professional functions like accounting and editing and So, on to very, very repetitive unskilled, fairly unskilled activity. But the point about it is that it's highly precarious, it's very unprotected, it relies upon the worker negotiating a fee as an individual, So, the people who do that kind of work are very vulnerable to exploitation, and of course they don't know who they're tendering against, what the competition is, when they tender for a job or a piece of work. And it can be anywhere in the world, So, suddenly people are pitched into a global labour market without realising it. So… in a way that introduces a whole new area of what we call precarity, but actually, for a lot of women precarious work has been the stuff of their working life for, you know, for many decades, for a long time, it's not new to some women, to many women.

Women who work in any kind of freelancing occupation or any kind of insecure work which might in the past have been manual work, and that's now being replicated online. So, in a way I think virtual work sort of exhibits some of the sort of gendered features of work in general.

[00:49:48]

Okay. I think you've skipped out what drew you to Catalonia in the first place, actually.

Oh. I was invited, I was very glad to be invited. I was actually between contracts at the time, I was self-employed, Work and Equality Research is my company and it's allowed me to do a lot of freelance research, and I was between contracts at the time and I was invited in the first instance to go and work in the Gender and ICT group as a visiting professor and sort of bring in some research and do it there, and that was a sort of standard arrangement that they had with a number of international researchers, of whom I was one.

Now, which year was that?

Two thousand and nine. So, I went there in 2009. Initially it was like, I think I had a two-month contract or something like that, but that was, you know, it was a great pleasure to be invited to go to Barcelona for two months.

Yes.

You can imagine. And following that two months I was invited to return the following year. And that, So, that went on. Each year I was invited back and finally I was invited to take over running the group, and I was delighted to do so. And the group's attention at that point was shifting into women in science and we successfully secured a very big European contract to build a portal, an online portal for resources on gender, science, technology, engineering and maths. So, what we were trying to do was to become a repository for all the kind of written and other material that existed in this field So, that activists and others, researchers, people who needed to get

access to it, only needed to go to one place. And it was during the course of that
project, just towards the end of that project that I realised I had to come home. And
that, anything about my husband and his care I think I'd like to keep that off the
record. I'm happy to talk about it, but I'd rather it wasn't online, obviously.

[00:52:04]

*Of course. So, I mean Spain is not a country that one would necessarily associate
with being in the vanguard of sort of women in, innovation of women in IT and So, on.
Is that a misconception or was it trailblazing or…?*

It's a bit of a misconception. The institute that I was working in was trailblazing. It
was set up by a very well-known sociologist called Manuel Castells who was invited
by the Catalan government first to do a survey of the spread of the internet in
Catalonia, and that was in the mid-2000s. And having done that work he was then
given some funds to set up a research institute, which was the IN3, it stands for
Internet Interdisciplinary Institute, it's fairly inelegant, but anyway. So, he was
invited to set up this institute and he created a number of research groups within the
institute, of which the Gender and ICT group was one. I mean far-sighted in the sense
that gender is not something that every male academic pays any attention to, So, he
gets a lot of credit for making that mainstream within the institute and giving us
resources to do our work. So, that's one way in which there was some path breaking
work going on. But also as we did our work there and had public events and invited
people, it became clear to me that there were indeed some very senior women in
Spanish IT in, principally it has to be said, in American multinationals, So, Microsoft,
Hewlett Packard, those kind of companies, but they were appointing key Spanish
women as executives in the field. So, in a way I found it very refreshing because I
hadn't met So, many senior women in ICT in Britain as I did in Spain a couple of
years later there.   So, there was then, there was then also an organisation, an
institution that [inaudible 00:54:36] funded, called the Instituto de la Mujer. It
translates as 'the Women's Institute', but it's not the Women's Institute in the sense
that we understand the Women's Institute in Britain. It was like a gender equality
commission that gave funding for research in the field of women's gender equality,
and they funded a project for us as well on the trajectories of women in computing.

So, again, fairly much on the button there, well with what was going on in the west of Europe and in some senses ahead of it, in the rest of Europe, I mean.
[00:55:15]

Yes. So, since then, what has your research focussed on?

Well, it's principally been, since then it's been the gig economy and virtual work, and I'd really stopped doing any active research in about 2016.

Right. So, thinking about what the impact of your work has been over the years, how would you assess that, what changes have come about perhaps as a result of it all that it's helped to bring about?

Oh, my goodness me, I think I'm probably the last person to answer that question. I mean I guess my impact as I know it, I think has probably been principally in the academic fields, in shaping people's thinking about how gender and technologies work together and how technology has embedded particular social and gender relations and may or may not have advanced gender equality, I don't think it has advanced gender equality particularly. I know that I've had an impact on the way people in this field think about gender and technology. In practical terms, I'm not So, sure, because I'm not regularly in touch with activists or practitioners in the fields of computer science So, much. So, I think it's been largely a sort of process of think work, where I think I've maybe had the most influence. I guess you'd have to ask people on the other side of it all.

So, if you're concerned that technology, the way technology has become embedded has really not been to the advantage of women, well, would you say you've failed then?

[pause] I don't know. I don't want to personalise it because it wasn't down to me personally in the first place. I think I just am quite pessimistic. I'm thinking now about the field as it is now, it seems to me that… it seems to me that it's extremely double-edged, the world of computer science and computing technologies. On the one hand I see fantastic stories of women path breakers, entrepreneurs, some amazing

women who, some of whom you've already interviewed and whose case studies are up on the Archives of IT site, that's really encouraging. So, I think there's that. On the other hand, the world of computer science is still very anoraky, it's riddled with sexual harassment. If we think about examples like Tesla in Silicon Valley, and I think Uber too, there are a number of very high-profile sexual harassment cases, weren't there, a few years ago in the field. So, it's not, it's not yet a good place for women to work in some respects.

No.

In this country I think there's a signal policy silence on the question of women and computer science and encouraging women into computer science and encouraging the sector to adopt working practices that are more amenable to the lives of, well, women and men. Paradoxically, Covid may have done more to facilitate the entry of women than anything, simply because it's created an environment in which flexible working is much more routine than it ever used to be. That's much more widespread. But I think, you know, for me there is a question about whether a career in computer science is desirable as it's currently constituted, and if it's not desirable, what is to be done to make it so. And that responsibility as things currently stand, I think, largely lies with the employers.

[00:59:45]

So, what's your answer to those questions, is it desirable, and if not, what still needs to change?

Well, as I said, I think it's a very double-edged issue because I mean clearly it is attracting in some very powerful women who are having extraordinarily satisfactory working lives, So, that's one element. On the other side we've got issues like sexual harassment, we've got issues like very routine areas of work, content farming, offshore information services, sort of whole global labour markets with very poor working conditions. I think that's the kind of work we… that's going to do nothing very much for gender equality and for women's welfare. So, some areas of the work clearly are more desirable than others. The participation of women in formal

computing education still needs to be boosted, women are still a tiny minority of computer science and engineering students, So, I think, I think interventions have to happen through multiple agencies, and not just employers. I think currently it's employers that are largely making the changes, whether as, you know, women entrepreneurs or as big organisations, those are the ones that are doing whatever good practice is being done. Little or nothing is going on at the policy level as far as I can see, currently. That's quite dispiriting. I think careers advice has improved vastly in the last [inaudible 1:01:44] years. That's one cause for celebration. It was in this country really quite poor and a lot of it fell to untrained people, untrained teachers to do and there was very little, I think, understanding of the kind of new jobs that are emerging with the information society, so-called, or virtual work or the internet economy, call it what you will. So, all these new, these possible new jobs, particularly that rely on social media or are done through social media. These are really very newly emerging occupations and it's difficult, I think, for careers advisers as currently constituted to be across all this stuff and adequately advise school students about what they might do next. So, people are learning as they go along.

[01:02:42]

Yeah, absolutely. I mean, do you, how important do you think finance is in all this? I mean we've talked a bit about women's pay and there isn't really- perhaps there is, do you think there is now equal pay at least in the IT industry and is it a route to riches for women?

Urgh, riches? Well, I think for some women it is, yeah, there are clearly examples of women entrepreneurs who do make it big. I don't think it's a route to riches for all women by any means, or even most women, and there is, there's a whole area of work in IT, with IT, with telecommunications technologies that's really very low grade, frankly. I think what concerns me as much as anything is not just the kind of the pay aspect, and I don't think it is equal in the sector, but I haven't done recent research in this field So, I'm not on strong ground with that assertion, but I think what concerns me as well is the way in which the spread of the internet and the spread of sort of freely available Wi-Fi and mobile telephony and digital devices means that people can be always on. And so, even if you're working in a professional area which is

reasonably privileged in terms of working conditions, the likelihood is that you are feeling the pressure to be always on, to be clearing your email inbox the whole time, to be responding to multiple demands through different media or, you know, social media. All the various routes into your inbox I think put an enormous strain on women and men to be available, to be online. And I think the ramifications for women are particularly serious precisely because this work, this sort of always on culture is bleeding into the, means that work is bleeding into the domestic sphere. I mean physically bleeding into the domestic sphere in the sense that we're all working from home more, So, the boundaries between, the physical boundary between home and work is dissolved. But it's also a temporal boundary that's dissolving so, you know, you can be looking at your mobile phone and doing a bit of online shopping one minute and dealing with a work email the next. So, the boundaries between – which used to be very firm – between work and non-work, or let's say, paid work and unpaid work, those firm boundaries have completely dissolved in my view. And I think what I see is a huge amount of stress. Now, in the case of women, because the home has never really been the site of leisure and it's always been a site where they're doing multiple forms of labour - unpaid, caring, emotional, you know – the kind of bleeding of paid labour into the home just sort of augments and exacerbates the demands on them. So, I think in that sense I'm quite pessimistic too and that's where I think we're going, or that's where I think we've gone already. What the future holds I'm really, I really find it quite hard to say.

That was my next question.

Yes, I thought it might be. I am just hugely, I am hugely pessimistic about what might be coming next in terms of working conditions because I… I don't know, I have the sense that more and more labour markets are becoming globalised and therefore more and more forms of [inaudible 1:06:50] work are being drawn into competition with workers in other parts of the globe and into sort of undercutting themselves in order to get work. Seems to me that there's more and more a rise in freelancing insecure work, self-employment, short-term, very short-term contracts and those kinds of working arrangements bring with them enormous numbers of freedoms but they're also they also throw the individual back onto themselves. They mean that the collective nature of work has largely been eroded and when that happens people I

think blame themselves more and more for whatever goes wrong with work. It means that if you have a problem you have to find an individualised solution. You have a problem with reconciling the demands of home and the demands of work, your solution is individualised, it's about the way you adjust yourself. There's no longer the ready access to things like work colleagues or trade unions or other sources of support that are collective, and that is where I see things going.

[01:08:13]

Yes. Yeah. Okay, So, what would your advice, in that case, be to the younger generation, particularly to women?   Thinking about a career, whether to become a computer scientist, I suppose, or have a career in IT?

I don't know, I guess I would say go in with your eyes open. You know, be aware of the fact that it's… I mean it can be hugely rewarding. I know So, many cases of women who had very, very rewarding careers in this field, but there are huge numbers of downsides as well. Maybe young people more and more are asking more of their work than maybe my generation did, that can only be a good thing. I certainly have the impression that younger workers are much less willing to do the kind of ridiculous working hours that were particularly prevalent in the 1980s where sort of long working hours were a badge of, I don't know what, importance, dedication, commitment? Your commitment was measured by how late you stayed in the office. There were even apocryphal tales, weren't there, of people leaving their jackets on the back of their chairs and their car keys on the desk and going home on the trains to look as though they were still in the office until late. I think that world has gone, thank goodness. So, I suppose I would say to young people you're in a labour market that is working in your favour at the moment in the sense that there's a labour shortage, take advantage of it, make sure you get the kind of working conditions and the working arrangements that suit the other areas of your life that you want to live and then go for a career in computer science, why not. Just don't let it, just don't let it, if you have any control over the matter, don't let it be one in which you are constantly on call, because we've seen that that leads to burnout.

[01:10:25]

And as you've talked about the globalisation of work, would you therefore say probably, you know, there's less point or sense or need to emigrate, go and work in California to make your money, go to other parts of the world – people used to go to Spain in the IT world to have a cheap life and still be able to do their work online – is it, what's the global sort of situation for young people now, would you say, especially those in the, particularly for the people in the UK at the moment, young people?

Yeah. A lot of the Silicon Valley companies now have a presence in London, don't they, so, you know, if you want to kind of work there, people are being hired by Facebook and Google in their hundreds at the moment, So, I mean there are options for staying here, should you want to. Yes, I suppose, I don't think that you necessarily have to go to Silicon Valley or California in order to work in the IT sector in some of the big American multinationals. Yeah. No, I think these decisions to emigrate have got to be personal, but…

But, I mean it is potentially a huge opportunity isn't it, that you can now work for Google, Facebook, Amazon from anywhere in the world and benefit from salary and So, on.

No, sure. Are you talking here about people working from home for those companies or working for those companies in newly set up facilities in their home countries?

Well, I'm thinking that the offices in London of companies like Facebook and I think probably Google and Twitter and all of them are now a lot emptier than they were sort of three years ago because young people, particularly given the cost of housing and So, on, and realising that they can do their jobs from, you know, remote parts of the country realise that perhaps that's what they would like to do and these companies have largely allowed that to happen. I mean, would you say? I mean some banks, some institutions have said no, everyone's got to come back to the office, haven't they? But in IT, do you think that's less the case?

I don't really know. I wouldn't, I wouldn't like to say because I can't, I don't think I can give an informed comment on what the IT companies are doing now. But I think

there's a, you know, certainly my perception that they are much more flexible about allowing people to work from home or work remotely, and that's always been one of the issues that's been held up as an attraction of working in, for instance, software development. You could be on a beach in Spain, as you say, or in a farm in Scotland and still be doing your job. But if your job, if your job is attractive to you for more than just the, you know, just the performance of the task, that you value the social interactions, the social stimulation, the learning that you get from other people, the engagement with the organisation, then I think working remotely doesn't answer all of those needs.

No.

It's a rather cut-down experience. And I must say, I do wonder when people are going to be completely fed up with working from their home offices and want to come back into the workplace. So, it seems to me that sort of the best mix is one that people do a bit of both, but that varies very much, as you say, from organisation to organisation.

[01:14:14]

So, what do you see yourself doing for the next ten years then?

[laughs] I really don't know. I really find that hard to answer, because my life has been very, very random and unpredictable for the last eight years and I'm only now starting to think about what I might do next.

So, are there, looking back over your professional life then, what would you say was your proudest achievement?

[pause] Oh gosh. I think there's, well I think there's probably a couple. I think running the women and ICT group, the Gender and ICT group in Catalonia was definitely a proud achievement, because we were able to build up the group and make it self-sustaining financially, which was one of the things we aimed to do, and get it really on to the map internationally, which it wasn't to start with, and it's now got an

excellent reputation because it has superb researchers, absolutely superb researchers, almost all of whom, I have to say, were hired by my predecessor, Cecilia Castaño, who was brilliant at bringing in good people and keeping good people. So, you know, she created a group that functioned excellently and stayed together, and stays together to this day. And my proud achievement is in supporting them and helping them raise funds to keep themselves in existence, So, I'm very happy to. I'm very proud to have been part of the European, to be an adviser to the European Expert Group, which was just So, interesting, and to have been part of generating a little bit of European policy around the information society back in the nineties. And proud too of having published a couple of books, one of which I know has had a very good reception and been very influential on the thinking of researchers across the world about gender and technology. It's the book called *Shaping Women's Work*, this one, which is now really quite old, but I think it's probably my best contribution.

So, Juliet, you also mentioned, I mentioned at the beginning that you're also an active member of a community support group for the resettlement of a Syrian refugee family, So, how did you come to be involved in that?

Well, I think, I've got a long-standing issue in refugees and refugee welfare and in the past, actually I've been on a management committee of a centre that looked after the welfare of refugees. I was approached to be part of this community sponsorship group and it spoke to my condition because of my own mother's refugee background and I'm happy to say that yes, my community has sponsored a Syrian family to come and live amongst us and they arrived some years ago and are now very, very well settled here and happily settled here, something which I regard as a huge achievement by them, and by us.

They're not by any chance working in the tech industry, I don't suppose?

No, they're not.   Although I think one of the boys might well end up there.

Yeah, good. Well, that's wonderful, thank you So, much, it's been fascinating to talk to you, Juliet, and good luck for the years ahead.

[01:18:02 end of recording]