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Open up the Culture of Masculinity in Computer Technology for Gender and Diversity

A Conversation with Judy Wajcman. By Marion Mangelsdorf.

The following interview is based on an online conversation that took place in February 2021 between Feminist Science and Technology Studies (STS) researchers Judy Wajcman and Marion Mangelsdorf. In 2004 Judy Wajcman published the STS classic *TechnoFeminism*, in which she analyses the fundamental presence of digital technologies and technological design processes. Wajcman discusses the range of feminist positions on the technological history of digitization and draws attention to the challenges that still exist today. She casts her decidedly critical eye on the gender issues as well as the racial bias that characterize digitization and assesses opportunities for cultural change.

Marion Mangelsdorf: *The 'culture of masculinity' is a key concept in your feminist approach to the social studies of technology. Has the culture of masculinity you have analyzed for the IT world changed in recent years with respect to the many private and public initiatives that aim to encourage women's participation in modeling computer technology?*

Judy Wajcman: I have been interested throughout my career in the relationship between gender and technology, particularly the role that technology plays in the construction of gender, how masculinity and femininity are formed, and the effects that technologies have on men and women. Central to that idea has always been the notion of skill and how the skill is defined, rewarded, and paid for. A lot of feminists who study work have argued that there is a very close connection between the definition of technical skill and its association with masculinity. When we started in the 1980s, and I refer to the British feminists like me or Cynthia Coburn, we were talking about industrial masculinity and traditional male industrial work. Cynthia Cockbum wrote *Male Dominance and Technological Change*, a book on printers, for example (Cockbum 1983). A lot of those skills were to do with: union organization, conceptions of strength, a long history of particularly craftwork and masculinity. And what we observed, interestingly, was how the value of skill changed from industrial work to forms of white-collar work, and yet the masculinity associated with skill stayed with it.

The most interesting thing for us now is to look at the history of computer science. And there have been some terrific books written on the fact that women were very involved in the initial processes of coding. We all know those photos of the early, huge computers. And then we see how, historically over time, computer science starts to professionalize, how it becomes a set of skills that you

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learn in particular places. It becomes highly valued. And you see the number of women in computer science, rather than continuing to go up, suddenly – in the 1980s – going down, and it becomes redefined as a high status, the high skilled masculine form of work. We know from work on gender segregation in the workforce that jobs that are seen as more feminine, like nursing, are regarded as less skilled and lower paid. And some jobs are seen as more masculine, often associated with technology, and are more highly paid.

Two years ago, I spent a year in Silicon Valley and Stanford and I could not believe how young men come out of computer science at Stanford into jobs where they get paid literally a hundred thousand American dollars. Whereas nurses and the cleaners who clean their offices – all sort of feminized work – are paid differently, as if nursing and childcare are not as skilled as computer science. The sort of young male computer science culture that dominates the Silicon Valley companies is a kind of new form of masculinity. Some people talk about it as *bro culture.*

MM: *So you would say that there is a change from industrial masculinity to a new form of masculinity that is influenced by Silicon Valley?*

JW: Yes, I think it has changed because the sort of men who were in there has now changed. I would trace it to Sherry Turkle's early work on hackers: *The Second Self: Computers and the Human Spirit* (Turkle 1984). She talks about this new culture of guys – MIT engineers – who immerse themselves in machines that avoid social relations. In a way they feel more comfortable being in control of machines and sit there all day. She described how their sort of life at work, how they get pizzas in their office at 3 am. They are completely fascinated by coding. I mean: that seems to be the culture that we now have got writ large in these high tech companies. It is a culture that is completely based on young men who have no caring responsibilities, who do not have to go home, do not have to look after anybody, because they enjoy all the free food and the 24 hour kind of culture of those companies, which are built to be like families but exclude family life completely in terms of the demands they make.

MM: *Yes, and indeed there are stories from women who want to work as computer scientists in the context of Silicon Valley and are called upon to freeze their eggs because pregnancy and child-care do not fit into that kind of career.*

JW: Absolutely. To underline what you've said, another example is this magnificent new Apple Park building in California that opened a few years ago: Everything is there except child-care. A dry cleaner, every kind of food, everything is there. But there is no child-care center. And that, to me, says it all. It is a culture where private lives should not impinge on organizational life, which is primary.

MM: *How do your thoughts on this* culture of masculinity *apply to recent depictions of gender in video games, e-commerce, social media, search engine algorithms, Internet phenomena, the digital work sphere?*

JW: This lets me think of how these divisions get reproduced in a lot of the technologies, as in Wikipedia, for example. I have written about the fact that, in Wikipedia, topics that are more to do with men's interests have more entries. There are projects in the Wikipedia Foundation to do something about this. For example, every year there are lots of hackathons now in Britain, where they try to put up women scientists as well. And it is documented that there are a lot more male scientists than female scientists. And that there is a racial and gender bias.

Google search engines are another example: you would, if you searched for 'inventor', come up with many white male physicists. So they are trying to change that, so that when you now put in 'physicist', you get a few black physicists, you get women physicists. These things are very important because this is really where most people get their knowledge from. Having sources of knowledge like Wikipedia reproducing these old divisions is a terrible thing. You have asked me about things that have changed and we want to talk about changes, positive things. So yes, there is more awareness and work on trying to do something about search engines, Wikipedia and Google, and all of these things.

But I also have to say something on the negative side, and I am aware of this because some of my colleagues at *The Alan Turing Institute* are doing a project on online harassment. Online harassment, in terms of race, anti-Semitism, and gender, is horrendous and particularly so for women politicians. It is a problem that is very, very hard to deal with. My colleagues at Turing are trying to lobby the government to do something about that. And that is not even talking about the American situation and the discussions now at Facebook about whether neofascist groups and right-wing groups should have space on Facebook. What are we going to do about that? In my opinion, it is all about problematic business models: the more controversial and outrageous the content, the more hits it gets, the more Facebook promotes those things. Maybe the search algorithms are an easier problem compared to that.

You mentioned video games, too. War games and the masculinity of those games are such old things. And the shift in those games goes very slowly. It is still very much a male area. And there is still a lot of harassment of women who try to get into the game.

MM: *At this point, we should mention the* Gamergate Controversy *that centered on issues of sexism and anti-progressivism in video game culture. Gamergate is used for both: the harassment campaign and actions of those participating in it. Here, the game developers Zoë Quinn and Brianna Wu as well as feminist media critic Anita Sarkeesian have played an important role. They tried to change gender representations in the video game culture and raise awareness of sexism in this context. But beginning in 2014 with Eron Gjoni, Quinn's former boyfriend,*

a harassment campaign against her and others took its course, including doxing, rape and death threats.

JW: It was horrible. And some of the men who started harassing the women in that Gamergate incident then went on to become right-wing people using the worldwide web for their campaign. It was like a practice run for all of the right-wing misogyny that then went onto the web.

MM: *Yes, and it is a growing group in the so-called manosphere, where men promote masculinity and misogyny combined with threats of violence on websites, blogs, and online forums.*

JW: Yes, terrible. But again, let us have a look at feminist approaches: You asked me about hackathons. I have a friend in America called Christine Dunbar-Hester. She has studied hacking culture and in her excellent book she deals with something called *Hacking Diversity* (Dunbar-Hester 2019). It is about feminist attempts within the hacking culture to shift that culture and to introduce more spaces for women and femininity and their struggles with doing that. I think that is an important area to get into. But lots of people feel optimistic about open source software and these alternative spaces, and yet they have also got forms of masculinity that are quite hard to deal with.

There is a nice blog post called *Programming Violence: Under a Progressive Surface, Facebook's Software Misgenders Users* by Rena Bivins (2016) in which she analyzed Facebook in terms of where you have to put down your gender. She describes how this Social Media Platform tried to be radical and said, "oh, well, you could put down he, she, and they," and they introduced all of these different gender categories to make you feel like they were being very liberal. But actually, internally on the deep structure, they were still putting people into male/female dichotomies because of marketing pressures. This is an example of one of the gaps between liberal representation and an economic model which is based on marketing that needs a dichotomous gender difference.

MM: *I want to emphasize: it's not just based on marketing needs, but also on the people's need to categorize. Firstly, it seemed as if you would be able to swap your gender on the Internet as an anonymous room acting as an experimental field to open up fixed gender roles, but it turns out to be not that easy. Immediately people want to know: "hi, who are you? Are you a girl? Or man? Are you a woman?" And they want to know if you lie on that issue. It is very important for them that you are authentic on that. And authenticity means that you are the gender you are in real life, and gender means especially: man* or *woman.*

JW: Yes, absolutely.

MM: *Critical observers of the ongoing digital revolution argue that recent forms of digital technologies, especially algorithms in machine learning, tend to reproduce and reinforce social inequalities.*

JW: What we have just been talking about is related to this question, because it seems to me that the algorithms used in search engines and any algorithms are based on old data. If you put in old data, the divisions and values of the old data will be reproduced in the new data. There is also fantastic work on search engines and criminal statistics: if you are using data on the prevalence of crime, you will find mostly data on poor, black areas. So then you adjust your criminal justice system to focus on poor, black areas. And so you reproduce this focus while excluding other areas. And that is the case with health, too. I am sure you know that wonderful book *Automating Inequality* by Virginia Eubanks (2018) on social policy and social inequality.

There is a big debate at the moment within the artificial intelligence community about fairness. Fairness in algorithms and transparency. And discussions about whether you can solve this problem technically. And a lot of people in artificial intelligence think that you can solve it technically. That you can somehow fiddle around with the algorithms so that you can control for biases. They conceive of the problem as just a problem of unconscious bias and that once we are conscious about it, we will deal with it technically.

We scholars in STS think that this is a more profound social problem and that it does not have a technical solution. The solution, which has been my solution of 40 years, is that you need to have a more diverse set of people involved in this work, so that all the people, such as black people and women, who will have a broader range of experiences, will become data scientists designing algorithms. Then we will design technologies to deal with those things in different ways. One of the things I am very clear about in my project at *The Alan Turing Institute* is that we have to keep in mind that the issue of the underrepresentation of women in AI and data science directly feeds into how data science and AI reproduce gender inequality. We have got to shift the representation of who the designers are, in order to make better technologies, better algorithms, better data science.

MM: *Yes. So you would say that forms of participatory design are important?*

JW: Absolutely. We can differentiate a lot of diverse movements and values in design, especially participatory design (see p. 10 of the introduction). These movements are thinking about these issues as not merely internal technical problems, but they are always putting science and technology in a broader social and political context and that is important. It was easy teaching my courses this year because the politicization of science could not be clearer in this Covid period. It is so transparent. It is just there every day. I do not even have to argue with the students. We need to look at the social basis of science and how it is produced.

MM: *Ok. In this context, research on the interrelations between gender and computer technologies often makes a distinction between two actor roles: user and developer. How would you respond to the hypothesis that this dualism is becoming blurred, due to recent algorithm-based technologies? In social media,*

for example, even if a person is a pure user, their online activities will be traced by software entities. The surfing activities generate feedback, which is integrated into further developments.

JW: This question is a great one for a Science and Technology Studies Scientist person like me. In the last couple of years, I have published on the automation of digital calendars, and on how they are giving us feedback on what we should be doing and how we are using our time (Wajcman 2019). I have been interviewing designers – when I was in Silicon Valley. Because I still think that what is special about STS, as opposed to many kinds of media studies and other disciplines, is that we are very interested in the design process. We ask how powerful design is in shaping responses, which is not to say that users do not have agency. But designers set the parameters, possibilities, or potentials for various uses. They also foreclose various possibilities. That is why, when I was in Silicon Valley, I was interviewing designers. It is just incredibly interesting because there are all these young guys designing calendars who are not thinking about all the things one might put into a calendar. They are just thinking about their professional lives and how to optimize their time. They assume they know what is a good way to spend time. And if time is not used efficiently, then it is wasted, then it is unproductive. I think it is always useful to know what values designers are bringing to their work. There is a long history of research on users and we still need to do more work on designers. You are saying that this dualism is being blurred due to recent algorithms. Yes and no. I still think it is important to make that distinction.

One interesting development is the emergence of self-tracking technologies which Gina Neff and Nafus Dawn address in *Self-Tracking* (2016), as well as various other people. I used to laugh when people said to me "I walk 10,000 steps." But this is so ubiquitous and it is affecting how people think about themselves and their bodies. In *The Quantified Self* Deborah Lupton (2016) writes insightfully about women being on diet apps and how it makes them think about their body. It makes them feel guilty because they cannot follow the app. Or it makes them feel more in control because they can follow the app. These things are much more powerful than I thought a few years ago. It is about automated data that claims to give you more knowledge about the self and how you respond to that and how you act concerning that. We might talk about it as being performative, about the extent to which the technologies shift how we perform, who we are, and how we think about ourselves and produce different kinds of knowledge for self-reflection.

MM: *What a nice conclusion. Isn't that the core part of your research, producing knowledge for critical self-reflection in cultures of computer science, design, and technology to sensitize for racial and gender bias and open up our minds for diversity? Hopefully to get rid of these biases one fine day. – Thank you very much for this interesting interview.*

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