

對話世界頂尖學者

讓世界更平等：行動科技研究如何促進身障人士觸及世界 Toward a More Equal World: How Research in Mobile Technology Helps People with Disabilities Access the World

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Editor: Dr. Katherine (Yi-Ning) Chen

Time: April 2, 2020



Dr. Gerard Goggin



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Abstract

In this dialogue, Dr. Gerard Goggin talks about the interesting manners, in his opinion, that various topics of mobile media and disability right issues in the digital divide era have

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emerged. He argues that the first-generation mobile phones or even second-generation mobiles offered many benefits to people with disabilities. However, technology does not fall from the sky and suddenly allow all things to become fully accessible. This underscores something almost resembling a dialectic of accessibility. In many ways, there is still a lag around issues that are quite significant for users—whether this caters to different or addresses the requirements of users with disabilities. He also shares some noteworthy projects he was involved in concerning disability and technology innovation in China and Australia. His current undertaking is looking at disability, aging, and emerging technology in urban Southeast Asia, such as in Indonesia, Singapore, and Vietnam.

KC : **In what ways have the topics of mobile media and disability right issues in the digital divide era emerged as something that you found interesting? Can you share a snippet of your research on these topics?**

GG : It's a good question. Before I entered academia, I used to work for a consumer rights group an advocacy group and that was in the early 1990s. We were trying to influence policy rights, and work with regulators and telecommunications companies. It was a consumer advocacy group, in in a coalition, so there a lot of disability groups in our membership. There was the Australian Association of the Deaf, Disabled Peoples' International (Australia), a broad disability group, and others. I really got interested then and started to work on issues like accessible payphones.

These were “old school” issues—such as like the button on phones right, the number 5 has a little raised thing on it there's a technical standard so the blind people can navigate a keyboard. I worked on those issues but increasingly when I moved into academia myself in sort of 1998 was undertaking research as well as policy around accessibility. As I undertook more mobile phone research from 2003 to 2004 onwards, I became really interested in the way mobile phones were being used across many populations right and were being used by people with disabilities—providing both the increased accessibility but then also giving rise to increased barriers or problems with accessibility.

With first-generation mobile phones or even second-generation mobiles, they offer a lot of people with disabilities benefits. Imagine if you're a wheelchair user or a power chair user and you get stuck somewhere, you've got the ability to ring people.

Now you see people routinely able to use voice call, commands, or other technology to call. However, technology doesn't fall from the sky fully accessible. Often part of the problem is the promise is that new technology will be fantastic. For instance, the iPhone is acclaimed for its accessibility—and was awarded a prize from the American Association of the Blind. Yet circa 2009 the U.S. Association of the Blind was taking Apple to court having legal actions because the phone wasn't sufficiently

accessible. This was an irony given Apple is a corporation known for its accessibility. This underscores something almost like a dialectic of accessibility. If when you are introducing new technology if you don't understand some of the requirements of users—with that kind of real user perspective—you're not necessarily designing the technology with those requirements in mind. The mobile phone is a really great example of this: mobile phones are used by blind people in the 1990s, because of the ability of software to operate with a screen reader to express voice commands or text (Goggin & Newell, 2003; Goggin, 2006). With the introduction of touch screens like smartphone technology in 2007, mobile communications becomes inaccessible again for some groups of users (Goggin, 2011 & 2017).

Crucially, we need to see disability as just one aspect of social life, that is interwoven with other things—whether it's gender, whether it's aging, or the different cultural requirements right across different societies or language groups (Ellis & Goggin, 2015). It's taken some time for those introducing technologies to catch up with these social dynamics, even in countries that have been in the vanguard of tech of technology like many East Asian, which have been in the vanguard of technology development with mobile media.

In many ways, there's still been a lag around issues that are quite significant for users—whether this catering to different, or addressing requirements of users with disabilities. Disability is a great cross-cutting example. Many of us have disability, or also have family or friends with some form of disability. If you live long enough, you'll probably get an impairment, no? Disability has emerged as a rich area of innovation and design, and you can see this a lot around the whole field of mobile media.

KC : Do you believe that the emergence of mobile media in the current digital divide era has eased the tension of inequality or enhanced the digital domination situation of that?

GG : In many ways the emergence of mobile media has really improved the situation of

digital inequality. As well as new possibilities for extending access and inclusion, then there are various issues of the sort I've already described right. Firstly, there can be battles ironically around access so that everyone gets the benefits. Secondly, there are new forms of exclusions. Touch screens are a really good example of that—as reliance on these by technology designers and manufacturers can be a problem for the visually impaired.

There are some subtleties to these dynamics. A lot of technologies have maybe been pioneered by disabled users or have been designed for them. An example of this is optical character recognition (OCR). Ray Kurzweil in devising Optical Character Recognition or OCR, was in some ways looking at ways to get texts and convert it to digital form, for use by people with vision impairments. We now take the advances of OCR and associated technology for granted across lots of things.

Another technology with many cross-overs in terms of user groups is subtitling captioning. We often see subtitling in different languages occurring with film, television, or streaming. But captioning—a related but different technology and set of practices—is crucial for Deaf and hearing impaired audiences and users.

Over many years, people have fought for media to be captioned and now increasingly for video to audio described (for instance, for accessibility for people who are Blind or have a vision impairment). An interesting by-product is that in public spaces, a lot of us actually read those captions or turn on the captions or subtitles on the television. Rather than seeing disability as a deficit examples like this encourage us to regard it as a plus. In the Deaf Movement, they call this “deaf gain” (as opposed to “hearing loss”), to emphasize that the contribution and positive nature of Deaf identity and culture.

Such technology innovation has not just improved digital participation and social participation for people with disabilities but actually has improved the lot of the wider population. So, there are clearly lots of positives in emerging technologies. And some of the negatives revolve around the complexities about how to conceive,

design, and implement technologies.

Take, for instance, the case of digital government services—especially when governments are keen to encourage (or even force) people to go digital. Singapore is a very interesting case study here with our “smart nation” strategy, accelerated due to the COVID-19 pandemic. There are a lot of people with a range of requirements, such as many older people with literacy issues, or people whose preferred format is not a screen-based format. So you need to ensure that people can access the services in digital form. The whole digital inclusion agenda is become larger and more complex, with these developments.

Colleagues recently like Eszter Hargittai (University of Zurich) has done this great work on, on Wikipedia and editing, coming from research gender, talking the question of how to deal with the fact that there’s not many entries on women on Wikipedia. Her important co-authored study in this area talks about the “pipelines of digital inequalities” (Shaw & Hargittai, 2018)—giving us a textured picture about who are people who might edit on Wikipedia, who are really keen, and what’s their background—are they people with a bit more money or a bit more education, what are genders are most represented?

I think that kind of digital inclusion agenda is where a lot of the work on disability is heading now, seeking to understand the intersectionalities at play. In disability, for instance, what are its interactions with gender, class, race, and so on. As a general proposition around the world, people with disabilities often have less money than the rest of the population, less access to the workforce right, and it can be hard for people with disabilities to get into universities to get degrees, and, among other careers, to become professors. These are overlapping issues, and encourage us to think about the close relationships between digital inequalities and social inequalities. This is particularly important in the case of disability which is often regarded, by default, as health or medical issue. Instead we are now paying overdue attention to disabilities and social equalities.

KC : In the past decade we have seen evidence that ICTs are playing a very important role in solving problems of exclusions and scarcity. However, in your latest research you find that the structure of exclusion still operates and may be visualized through the hype associated with new technologies. Can you share your research perspective on that?

GG : With each kind of wave of emerging technologies that engagement is really important. In the case of implementing artificial intelligence and automated decision making, for instance, we know from many contexts relating to people in receipt of social services or social support from governments. This was highlighted in a 2015-2020 Australian case known as “robodebt” where people on unemployment benefits and disability support were sent debt recovery letters by an automated process—without human oversight or proper ability to query a decision. So injustice was done here in the shaping and deployment of AI, algorithms, and automation, rather in the way that the US scholar Virginia Eubanks discusses in her book *Automating Inequality* (Eubanks, 2018), or various researchers have put on the agenda in relation to race and emergent technology.

The people affected might be injured workers, or they could be older or younger people. But disability can be a major part of their lives and the social complexity they inhabit, without it being realized. This has major implications for digital inequalities. Consider, for instance, that mental health is one of the biggest causes of disability around the world—and mental health issues are often part-and-parcel of whether people are supported in workplace or social participation. Such issues then loom large, you’re introducing say, AI into welfare systems or social support systems. Without knowing it suddenly there can be—at least for governments, service providers, or technology companies in charge—apparently unanticipated consequence .

Clearly as these technologies are considered and rolled out, you really need to have these conversations—at a minimum, to be talking to users, people with disabilities.

But much better still to have genuine shared decision-making and shaping of technology and services, with users through the whole cycle of innovation. Now the consensus probably that when you're trying to implement AI (for instance), one needs to think about the mix between AI and human—and how can you put AI in the service of human advice or thinking or policy.

I think that there are many issues here for understanding disability and technology—such as the use of digital platforms for interviewing and hiring. This can be a major problem, if the “training sets” used for the technologies are based on databases of successful interviews of existing employees or workforces—where typically people with disabilities are under-represented. This is something highlighted by the work of the New York-based AI Institute (Whittaker et al., 2019).

KC : I know you have devoted much time and effort toward disability rights and digital economy research, including business, health and education, politics, public policy, and cultural studies, in both Australia and the Asia Pacific area (for example, Japan, China, South Korea, etc). Can you share the current development of your research? What are the differences and similarities in these countries you have studied and the implications for international and local researchers?

GG : Comparative research is so important, but it takes a lot of resources, expertise, and relationships. One interesting project I in this area was a study of Internet histories—in the Asian region. This involved researchers studying Australia, South Korea, Japan, and China, aiming to reorient the nascent area of Internet histories towards a much more international, cross-cultural approach, that provided a richer picture than dominant ideas about the Internet's identity, origins, and uses. This resulted in the book *Global Internet Histories* (Goggin & McLelland, 2017), and also fed into the establishment of the journal *Internet Histories* (a collaboration with European, US, and Canadian colleagues). The comparative Internet histories research, especially in Asian contexts, is very interesting in terms of mobile technology evolution—

however, there's a lot more work to be done here.

There is even more work to be done in comparative accounts of disability and technology. Interestingly, there is wonderful work that has emerged in recent years in this area—especially in the US. Hopefully, there will be more work in other contexts, and also work that can be comparative in its temper and scope.

One interesting project I was involved in was on China and Australia and disability and technology innovation—led by Professor Haiqing Yu (RMIT), who was also a collaborator on the Asian Internet histories project. She assembled a team of people with expertise in Australian disability, social policy, and technology as well as matching expertise in Chinese social policy and technology. In the fieldwork our team did in China, especially, we looked at some of the kind of social enterprises and emerging directions in disability and technology. This included companies such as Alibaba who want to do something about disability, against the backdrop of growing awareness of disability issues and rights, and new possibilities of how these might be combined with digital technology and entrepreneurship concepts (Goggin et al., 2019).

A common notion that crops up here is the idea that particularly with digital platforms, you could be a person with disability who can't get a job somewhere else but you can start your own business. In our preliminary fieldwork, we saw some success stories but detected major issues. For instance: how does that all of this come together in the right way, to make it successful (and how is such success defined)? What's the technology possibilities, and how do they intersect with systems of social support or participation? These social support systems, and how they articulate into market-based provision of digital technology (that mobiles and apps represent, for instance) or government-based systems of assistive technology provision), are in flux. The “ecology” of disability and technology and its realities in terms of digital equality, and what individual users actually expect and get, is very different depending on the country's systems (not to mention, people's social position

or political recognition). With its new National Disability Insurance Scheme and National Broadband Network, Australia is quite different from China with its social policy framework around disability plus its major technology initiatives in digital platforms, AI, 5G, and so on.

My current project is looking at disability, aging, and emerging technology in urban southeast Asia so looking at Indonesia, Singapore, and Vietnam. As well as exploring these different settings, as much as anything I feel building research collaborations is key.

In the area of disability, the key thing is summed up in the adage “nothing about us without us”—so taking one’s cue from and working with disability organizations, disabled researchers, and in in coalitions with others is foundational. Across these societies also it is evident that they have very different approaches to disability and different systems of provision. Singapore, for instance, very wealthy society, very advanced digitally, but in some ways, disability is a relatively new concept in a rights sense (Goggin & Zhuang, in press). By contrast, aging has received much more focus in Singapore to date.

I think every society has a story to tell about how disability is being made more visible, and “coming out of the shadows”. What’s interesting is across the Asian region, there is certainly more and more interest and awareness. Governments are kind of going “Oh hang on, we need to do something about disability”. At the same time, they are often thinking: “We need to do something, but we don’t have much money. What about digital technology right?” And “hey” isn’t that really cool, look at these people doing startups”. So before you know it societies face the the kind of participation pipeline problem we just talked about. And here some of the fundamentals need to be put in the foreground; such as are people actually getting like good economic opportunities, how does that work? From a policy perspective, how would you make sure that happened?

In the digital inclusion agenda, which has been once again receiving much attention,

there is the issue whether disability is properly integrated. When we talk about digital inclusion, does disability come immediately to mind, as a reflex? This is important also because disability has a lot to add in opening up access and design issues.

KC : **Do you really think that Singapore is a good place, as a very nice place for you to do disability research. I actually never seen any disabled people; you know on the street in Singapore. I mean I have traveled there for ten times at least. I've never seen any, you know. I just want to know why you choose Singapore.**

GG : I certainly understand what you say in terms of your experience. The public space is crucial and revealing. I think it is still the case that in the public sphere in Singapore, like most if not all societies, disability is absent.

It's there if you care to look, but also if you know where to look. In Singapore, there is increasingly visibility and representation of people with disabilities across social life. Also a sense among government, business, institutions, and so on, that participation needs to be addressed as a priority issue. There is an annual awareness event in Singapore called the Purple Festival that is a small but significant step in this direction. There is a burgeoning critical disability studies movement Singapore, and across Southeast Asia—with information, communication, and technology seen to be a key area for cutting-edge work.

In universities, my experience has been that students are really up for disability social transformations—which naturally involve technology in doing things inclusively. When I teach mobile technology, or global media policy and governance, or introduction to media and communications, I just fold in disabilities as if it's normal (which it is). Students get the principle and are really interested. They might have a learning curve but particularly if you relate it to another topic that's just starting to be talked about around the world—and in Singapore—mental health, the conversation really takes off. A little later than some countries, mental health in Singapore has become a more mainstream issue. If you talk about mental health with students and frame it as disability and say look, one of the biggest causes of disability is actually

psychological, psychosociological, it's mental health, most people have a story to tell.

KC : Does the disability research include those mental health issues?

GG : It potentially includes a range of different things because the perspective I take a broadly social approach. It's looking at that aspect that disability is as much "caused", or shaped, by the society (which is something proposed by the British theorists of the "social model" of disability) (Goggin & Newell, 2003). Consider when there is an inaccessible lecture theater. The issue here is not that a person with a wheelchair has a problem. Rather the obstacle is that the environment's inaccessible.

Or if you can't use your mobile phone because it requires the touch screen and doesn't give you an alternative input interface. that's not your fault because you're might be, say, a Blind or Deaf person, Rather, it is , that's a design issue. In relation to mental health, even from the perspective of a "biomedical" approach, if you look at the World Health Organization statistics or look at labor force statistics, it is clear that, mental health issues constitute a major part of severe impairment.

KC : Many countries, for example Australia, have consolidated convergent media and communication policies together with regulations and the media regulators, but media regulation convergence is a central problem for both international and national policies. Why do you think this is a problem? What is the implication for communication researchers?

GG : I think it's a really interesting question. For 20 years people have been saying "look you need a convergent media law". It's amazing that many countries haven't got it right It takes a surprisingly long time for policy and regulation to get like an integrated framework. I'm teaching now a course on global media issues and policy, focusing on digital platforms—a big issue of the day. There has been widespread realization that we lack a kind of unified framework where we can deal with these new kinds of platforms that are multi-sided markets. Because they're commercially owned ,for the most part, we have issues like moderation where the company is setting the policy, so it raises "wicked problems" of how to do governance.

With over-the-top kind of applications, and other technologies, we are looking at industries that are new, that don't want regulation introduced. Nor do they want existed and well-accepted regulations to apply to them, such as consumer regulation—as we can see in the reflex response of the potentially very lucrative start-up in the pay later FinTech area. This seems odd. If there are well-established consumer safeguards, or privacy safeguards, for example—why wouldn't these rules apply to emerging technologies?

In this constant struggle communication researchers have a really important part to play. We have the ability and standing to bring this to attention for the public good and to work with the different actors to look at ways to develop effective and equitable approaches. Key to this at present is the fact that research really needs to be done on emerging technologies. So constructing research coalitions in different ways is really important, as colleagues have now in relation to content moderation and digital governance.

KC : **Netflix.**

GG : Netflix, like Facebook and Whatsapp, are commissioning and seeking out research from university researchers that might be to burnish their own corporate image. However, but it's also because problems like moderation are really complicated, with the complex mix of non-human actors like automation as well as understanding users and digital cultures and societies across many different locations, languages, and socio-demographics. So innovative research is needed.

KC : **What's our goal for doing this kind of research. You know some communication scholars here will emphasize that we should be trying to protect national cultures. I'm not quite sure if this should be our mission, to protect national cultures. What's your perspective on that?**

GG : For those of us in the research community who work in policy or have an interest in policy and governance, I think provide theories and frameworks is a classic task that

takes on heightened importance. The second thing is really to do kind of empirical research right: to use new methodologies and interdisciplinary methodologies, and bring together engineers, regulators, humanists, social sciences. The third thing is, I think there has been a long tradition of communication policy researchers working on “normative issues”—and this needs to be understood and configured differently across particular cultures.

Nations and their cultural dynamics have come back into the frame with developments in global media, especially digital platforms. But the questions and implications can be quite different. There are threshold issues because what’s the “national culture” is very problematic, because it goes straight away to what the exclusions and privileged elements or groups are. And how, for instance, to grasp and configure media and cultural policy for the specific ways that nations imagine themselves, and their architectures of multiculturalism or plural cultures. (All cultures being hybrid and plural, but typically contested and fraught).

So, what I’d say is that communication researchers need to do theorization and they need to do empirical research, and potentially to be involved in “normative issues”. Another tradition of this comes from “public interest” and communications rights and technology policy researchers, and political economy researchers—both well represented in the International Association of Media and Communication Research (IAMCR), the scholarly association dear to my heart.

KC : The next topic concerns mobile Internet, which is a complex set of media and communications and involves convergence across mobile phones, broadcasting, and a wide array of new technologies and social practices over the Internet that constitute locative media. However, we should not lightly discard the older media policy objectives in the present diverse circumstances. Can you share your thoughts on this?

GG : The specific nature of policy objectives changes in relation to the Media. In relation to Internet, net neutrality emerged as a new and important issue. However, this has

now changed—as notions of net neutrality have internationalized, in conjunction with the diffusion of Internet, especially mobile Internet, around the world. Net neutrality shared an aspect of the common carrier issue of the telecommunications genome but it's different.

In the last few years data privacy and surveillance issue have become central. I'm sure when you teach or research privacy, you're thinking, this stuff's been going on for a long while right. For instance, since the 1970s in the 70s in Europe and in the Asian countries (adapting European approaches). Yet the issues are rather different now. Or there are some similarities but with the pervasiveness of the technologies, and a combination of other factors, the concepts need to be rethought. We should be open to the idea we might need to reinvent what's a national media objective. For instance, countries have got a lot more bandwidth and an explosion of new formats, content, and audiences, so scarcity is not so much the issue. What does remain important is how you sustain cultural production and how you tell your own stories (however you call that)—when you know that might require innovation policies and support for cultural industries. You might decide to have a film industry. I'm not sure how it works in Taiwan.

KC : Yes. Actually, in Taiwan we have a big issue, which is about being objective for the TV news reporting. And I think objectivity is not going to happen in a news market in Taiwan, and I really think that's outdated to me to address regulation of TV news for the objective of neutrality and objectivity. Do you think that we should reconsider giving up that kind of thinking?

GG : You should at least question it because I suppose, does it serve a particular function to have that policy going? In Australia, for instance, objectivity is actually something constantly raises—but it's the national broadcaster so the Australian broadcasting commission gets investigated for objectivity breaches, bias, and son, and they don't get fined per se, but the function of that attention and criticism is to discourage them from reporting contentious topics, or ultimately to shut them down.

So, we continue to try to think about those objectives of how you get accuracy, and how you get diversity of voice (the other issue around objectivity. What is really crucial it's a very different context at least, with new media forms (such as Twitch and other streaming platforms) where media objectives and regulatory rationale and modes need to be rethought.

KC : **This is a give switch now to mention apps on mobile phone. Do you think that the mobile media have changed our society and what will the effects, especially on those negative issues like ethics, privacy, and so on, on our society be in the future?**

GG : I'm in two minds. Overall the set of digital changes in the last decade have been very significant—and mobile media has been a really important part of that. With colleagues, we have just published Oxford Handbook on mobile communication and our introduction is called the “Smartphone Decade” (Ling et al., 2021) and I'm have also just finished a book on apps (Goggin, 2021). I'm sort of thinking about this, you think, oh how revolutionary is it, you know, and I mean I can see that the mobile form has been really and mobile media has been extremely important but when you pick apart mobile media I mean, as you do in this question, but you know, you've got different parts to it, whether it's a messaging platform, what's the affordances, what are we talking about exactly. I'm probably more comfortable with saying, there's some total of things in which mobile media has been really important, particularly in the last 10 or 15 years. Yet there are important social and political and economic components in play also, especially across different societies. So how do we think about a global form like the mobile phone, and also consider the ways that it gets shaped in different societies.

I was just re-reading Dal Yong Jin's 2017 book *Smartland Korea* (Jin, 2017), which does this nicely. He looks at the smartphone, and the way it has ushered in major changes in communication—but shows how it operates in say a really specific political economy context in Korea, in a particular cultural context. Clearly also the

mobile phone, like all technologies, has long histories, whether it's stretching back to the telegraph or histories of transportation. Or more recently histories of Internet and digital cultures.

KC : **The next question covers P2P Flow. P2P Flow information in the context of the sharing economy or the platform economy means that people are able to work in virtual reality. Do you believe it will reduce or magnify the inequality that has been created through collaborative innovation between service providers and service users?**

GG : These are amazing new technologies that billions of people use. In a way, it's creating a kind of new realm you're trying to make sense of. Such platforms to extend new participation opportunities. However, I do think we're at a critical juncture in relation to the "platform economy". Increasingly people are saying "this can be really fantastic but does it have to work this way?" In particular, do large parts of platforms have to be controlled by largely unregulated transnational corporations.

To actually address the burgeoning and equality issues and participation issues, I think there's enough, enough anecdotal and other evidence now to say hey, "you really need some serious kind of labor rights, frameworks." Labor rights may not be a part of the dominant narratives in many countries (they are not a leading part of the official Singapore story, for instance; and are widely contested elsewhere). However, fair and justice frameworks to work and labour, and clear actionable rights are crucially to actually make sure that all members of societies can share in the benefits of these technologies.

KC : **Won't it help reduce the inequality?**

GG : Platforms can help to reduce inequalities, but also can amplify or exacerbate inequalities—in new ways. A major stumbling block lies in the political economy—who owns and controls digital platforms, and then how their power can be regulated. Once this is addressed, we can deal with burgeoning inequality issues. My very last question targets the direction toward different levels of the digital divide, in which

researchers have long discussed the “relative impact of disability” and focused on the “difference in access to ICTs”, rather than “differences in what people do online once they have gained access.” What do you think researchers, governments, or the public should do or become involved in when addressing issues of the digital divide?

KC : My very last question targets the direction toward different levels of the digital divide, in which researchers have long discussed the “relative impact of disability” and focused on the “difference in access to ICTs”, rather than “differences in what people do online once they have gained access.” What do you think researchers, governments, or the public should do or become involved in when addressing issues of the digital divide?

GG : What people do when they are online (the second part of your question) seems incredibly important now. Access issues are still vitally important—and take different forms. What are the access issues that are still be there in big countries like Australia—often we see major disparities still in rural areas. Or in urban areas you might have different households with different socio demographics. Then there are complex literacy and education issues. These factors feed into the discussion of what do people do when they’re online, especially: What is the kind of quality and nature of social participation and connection?

The important work underway on the subtleties of online participation and connection are crucial to understanding things like digital citizenship or the next generation of work “digital readiness” issues (as it is framed in Singapore). Sometimes policy makers are not so cued into those modalities and dynamics of digital life, equalities, and inclusion. So it can be important to suggest that while nation level ‘big pictures’ statistics on aspects of access and use are important (and often not easily available), these things are really big and slow moving in terms of research, we also need much qualitative research.

If you look over the last 10 years, I think a lot of regulators have moved from commissioning or understanding statistics and research on access to being interested

in research and helps them figure out an emerging area of digital technology—whether it’s blockchain, or whether a digital platform. Policymakers seem to be realizing they might need more fine-grained surveys, more qualitative work, and research that focusses on different populations. Researchers can offer frameworks and advice to help industry regulators to deal with the complexity but persuade them of the importance of critical research on technologies also.

KC : **With that in mind, do you have strategies for persuading regulators to focus more on the disability issues?**

GG : I wonder if work that looks at disability and accessibility across a range of an areas might be something that is compelling for regulators and governments (not to mention industry and civil society). A few years ago, it might just be about what’s the accessibility issues, but I think it's probably more revealing if there’s a focus on digital technologies via disability and employment issues or gaming. That is, to offer some creative “slices” to suggest the implications for talking about digital societies and the diversity of people with disabilities.

In relation to digital society, it is the quality and the nature of that experience that is key—as we have been discussing. Policymakers are trying to get their heads around these new dimensions of participation in digital societies—and are doing this across government. So for some time it’s been the case that digital inclusion is not just a matter for your media regulator. It’s often the social ministries, who are saying “well hang on, we’ve got to deal with digital inclusion”, or often provincial or state-level governments, rather than the national governments. So this shift is an important opportunity for a much more fundamental and rich conversation about digital technologies, social inequalities, and inclusion.

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