TO BE OR NOT TO BE VIRTUAL – THAT IS NOT THE QUESTION

BILL DUTTON revisits past research and highlights the opportunity for a new research agenda to inform answers to the right question of where to locate people

News coverage in the midst of the COVID-19 pandemic reports wonderfully conflicting stories about activities moving online. On the one hand, UK Members of Parliament (MPs) were angry over their "virtual parliament" coming to an end.[1] On the other hand, Prime Minister Boris Johnson was facing criticism for continuing to meet with his cabinet via online videoconferencing rather than getting together for face-to-face meetings.[2] These same debates emerged in the US, around the Supreme Court, and Congress, with various committees meeting online and others in hybrid forms with criticism coming from all sides. More broadly, they are echoed in many other institutional contexts such as in business and universities considering moves of core activities online. Should more business personnel work from home (WFH) or get back in the office? Should traditionally campus-based universities move campus-based education online?

These are fascinating and important debates that will have consequences not only for judicial, legislative, business, and educational processes but also their outcomes. And we all have opinions about them based on our own personal experiences.

As I write in mid-2020, most of these debates are directly tied to the coronavirus pandemic. But the question of substituting electronic communication for face to face meetings and work has been researched for decades. It is useful to revisit some of the key findings of this research since a number of old studies are relevant to these new debates. Specifically, in light of decades of research on electronic and networked communication, it is useful to shift the debate over whether or not to meet or teach online to where particular individuals need to be in order to enable them to meet face-to-face with those most critical to their work.

The question is not whether to be virtual, but where to locate people. The pandemic has not proven the value of being online – virtual rather than face to face – but it has shown it to be a viable option that can be used in ensuring people are located where they can maximize the value of face-to-face communication. There are lessons to be learned from past research, but also unprecedented opportunities for a new research agenda addressing these issues of the media and the geography of communication.

THE MEDIA OF COMMUNICATION
The substitution of virtual, online media, for real – face to face – meetings has been studied since the 1960s, when AT&T's Bell Labs began development of a video telephone. In the US, an assessment of the impact of the video telephone was launched in 1971, a few years before the first commercial launch of what was then called the Picturephone™. This early video phone soon failed in the marketplace given its cost and design. For instance, the alignment of cameras created direct eye contact between participants in a call. Engineers thought eye contact was a good thing but were not sensitive to the degree people are not comfortable staring into each other's eyes for very long when speaking.[3] AT&T moved away from interpersonal communication to installing the Picturephone™ technology in purpose built electronic meeting rooms to support group communication. Everyone liked the experience but seldom came back, possibly due to the difficulty of travelling to the rooms and the burden of booking them in advance.

About the same time, research began in Britain on electronic meetings, focused on the costs and benefits of meeting via such options as text-only online, voice-only (phone calls or conferencing), videoconferencing, or face to face. Seminal research at the former communication studies group at University College, London, found that if an information task involved only the transfer of information, then simply using text-based online media, like an email, would be the most efficient approach and may have no consequence on the outcome. However, if the task involved negotiation, bargaining, or other interpersonal judgements, then it would be better to use media with more "social presence".[4]

The concept of social presence, and its relationship to different communication media, emerged from social psychological experiments with electronic meetings conducted and reported by John Short, Ederyn Williams, and Bruce Christie in 1976 along with others, such as the late Martin Elton, who from 1979 helped pioneer New York University's Interactive Telecommunications Program. Their work spawned decades of further research and various reconceptualizations of this concept of social presence, but the theme of their findings remains clear and relevant today.

Generally, their research found that face-to-face, in-person meetings had the highest level of social presence, other things equal, followed by videoconferencing,

followed by text-only telecommunications. Social presence leads to some inefficiencies in simply transferring information. Think of walking into someone's office to get an address, and the conversation that would surround this task. Not efficient. So less social presence can be more efficient, such as by reducing distractions.[5]

That said, any transfer of information is inevitably in some part a negotiation, such as "please listen", or "please may I have this address". That said, some in-person meetings can have little social presence, such as teachers trying to hold students' attention in a large lecture hall. Nevertheless, some information tasks are relatively more focused on negotiation, such as arriving at a group decision or judgement and other more focused on information transfer, such as distributing a report. If you are essentially giving or receiving information, it is more efficient to use media with less social presence – say an email or a recorded video lecture. If negotiating or making a judgement, particularly as a group, it is better to meet face to face.

However, this last call depends on your status in the group. If you are the leader or most influential in the group, it is better (for you) to meet face to face, as this will enable you to better assert your position of authority or realize any benefit of your personal communication skills. If you are less likely to be influential in the group meeting, it might well be better for you to meet online, as text- or voice-only, such as a phone call, can have a levelling effect, making it more difficult for those at a higher status to dominate the discussion. For example, before email, the telephone was often viewed as a democratic technology given its levelling effect. (It would still be viewed in this way if it were possible to reach anyone by phone!)

Remote communications can also change the composition of meetings. I once studied a West Coast satellite communication firm, which traditionally held quarterly reports for a department by the head travelling to the head office on the East Coast, and then reporting back to his colleagues. In contrast, when they met over videoconferencing, his colleagues could sit in on these meetings and see and hear exactly what the head office said, giving them an advantage by removing their dependence on one representative's interpretation.[6]

Given these interpersonal social dynamics, the choice of medium is complicated. It could have redistributive versus Pareto-optimal implications. Whatever you decide, some might be better off and others worse off by choosing one medium over another. Therefore, it is not surprising, for example, that teachers and supervisors prefer face-to-face communication with their students or workers they supervise rather than remote and less personal communication media.

THE GEOGRAPHY OF COMMUNICATION

On the basis of social presence, it is preferable to ensure that critical communication – tasks that go beyond simple information transfer – are face to face. So rather than a simple choice of medium, and given the realities of people distributed around a building and around the world, it becomes an issue of the geography of communication – where people are located. Telecommunications has not led to the "death of distance".[7]

An insightful analysis of this issue arose from a study of organizations that concluded it was geography that still mattered the most.[8] It was most critical to be where you needed to be for tasks that benefit from face-to-face communication. Tracking the evolution of these organizations, it was clear, for example, that back office operations at a bank do not need to be in a central city because it is most important to enable those in the back office to communicate well with one another, not necessarily with top management. Therefore, they can be located outside of a high-rent district in the central city to a more remote back office.

In contrast, the top management of a bank would need to have good communication with executives at different businesses, law firms, accounting firms, and be near executives of their largest customers, creating an argument for them to be located in the central city – where face-to-face communication will be enabled with other executives. In short, you should try to locate people where they most need to have face-to-face communication and rely more on online media for remote communication for less critical information and communication tasks.

Therefore, the key question is not whether to use

← online or face-to-face communication, but where you should be in order to facilitate face-to-face communication with the most critical people in your life and work. Here is where the problems arise for teachers, sales personnel, politicians, legislators, and judges. Should they be closer to their students, customers, constituents, their colleagues, the leaders of their party, the defendant, the media, or their staff.

The coronavirus pandemic simplified this geographical calculus, as many people were required to stay at home and use online media. As the lockdowns eased, the experience with working online led to many individuals wishing to remain at home and online, but the interests of many employees are not likely to be served by WFH. For instance, politicians, including parliamentarians and members of Congress will need to be in many places at once in order to work effectively with many different kinds of actors critical to their role in politics and government. In this situation, online media will better enable them to be where they most need to be at any given time to meet face to face with the most critical individuals and groups.

Sounds simple, but it is not. Ideally, this understanding should lead legislatures and parliaments and executives to enable their colleagues to have options. Tell them: "Be where you should be to have the most important conversations you can have today – to be present in the most critical meetings." Use online media to follow, contribute to, and otherwise participate in activities that are less critical. You might well need to be left alone to write, for example. In some respects, these issues might lie in part behind moves toward "hybrid" virtual legislatures, and "hybrid" online teaching options, so that some activities can be moved online, and some remain face to face. But choices need to be more fine-grained and flexible than most hybrid models appear to be.

THE COMPLEXITY OF CASES
The real world is more complicated. One cannot always choose where they are located, nor whom is co-located with them. Looking at a couple of specific institutional contexts, particularly business and universities, it is possible to see how geography rises to the forefront of everyone's calculations.

THE BUSINESS CASE
In the UK in 2020, businesses in London and other central business districts across the nation emptied out as more personnel were asked and allowed to WFH, creating what some called "ghost towns" of central cities. By September, six months after the March pandemic hit the country, the UK's Office of National Statistics estimated that 40 percent of employees were working remotely, primarily from home, with residents of London being more likely to WFH than residents of other areas.[9]

With uncertainty over the pandemic remaining high, many employees and businesses were positioning themselves to remain WFH – as the new normal. One CEO spoke of working from home "forever".[10] For example, banks were planning to convert some of their branch offices to be used for office space, enabling them to downscale branches and their use of office space in high-rise buildings and

more expensive London or central city real estate across regions of the UK.[11]

Despite the health and financial pressures to WFH during the pandemic, there remain many incentives to go back to the office. With schools opening, and the UK government seeking to create the conditions for the public and politicians to return to work, return to school, and return to Parliament, there are new pressures to work from the office (WFO). Moreover, while many employees found WFH to be productive and advantageous, many found it difficult.[12] Babies, toddlers, pets and household interruptions during videoconferences were a novelty for some but became a problem for many who quickly tired of the distractions. Moreover, while many did not need to interact on a daily basis with those with whom they shared office space at work, they might be better off mobile and located closer to their customers and clients, rather than at home.

The traditional line-of-sight management rationale for centralized offices has been undermined by such innovations as performance-based management and online activity-based tracking of work. The pandemic proved that business could be done remotely. However, it did not establish the superiority of WFH as opposed to working from remote office centres or in the central city. This would depend not on being able to communicate online, but on whether they would be better placed in a location where they could meet face to face with those within their business and their business partners and clients at a more central location or from their home.

The ability to work online might have been a surprise to many, but it did not establish the superiority of one or another approach for all employees or even all information workers across all businesses. It will require critical analysis on a case-by-case basis to establish where a person would best be located. Therefore, any blanket endorsement of WFH or moving back to WFO is likely to be off the mark for many individuals and businesses.

UNIVERSITIES AS A CASE
Universities are poised to begin a new academic year with great uncertainty. They have been telling faculty, students, parents, and the larger public about how they intend to respond to the COVID-19 pandemic.[13] Despite much instability and some high-profile reversals, decisions have been taken by many universities about how classes will be held at least in the early stages of the coming academic year.

In this context, educators are discussing how they expect all the various actors and stakeholders to respond to different strategies and what this means for the future of higher education. Is this crisis an opportunity for fast tracking the sector to more efficient and affordable approaches to education, if not a major shift to online learning; a temporary stopgap before the virus is bottled up and they return to normal; or an inevitable train wreck for the future of higher education, such as the creation of campus-based education at the very top universities and moves to online education at others? Alternatively, will most institutions basically muddle

through this pandemic before reverting to more conventional approaches. Simply search online for "COVID-19 and the future of higher education" and you will find a continuing stream of articles, interviews, and opinion pieces.

I have been supportive but also concerned about the challenges of moving higher education online for decades[14] and have tracked unfolding developments and have reflected on what should be done.[15] The challenges are serious (see box). Many if not all universities have had to take very significant steps.[16] Some moved their most recent graduation ceremonies completely online albeit many of these same institutions promised to invite students back for the real thing in the future.

Some universities have chosen to move to online courses completely or, to varying degrees in various scenarios, to blended approaches to delivering courses. A number are offering more choices to students, such as to defer, take their courses online, attend hybrid (online and in class) courses, or physically attend classes that respect social distancing. All these options are approached in the midst of uncertainty over whether fewer or more domestic and international students will want to attend classes, be able to take online courses, live on campus, and pay the going rates of tuition.

Here again, any blanket endorsement of online versus in-person teaching and learning is unlikely to be the best solution. Efforts to enable teachers and students to have options seem to be the most promising but also more costly and therefore problematic in the context of coming financial shortfalls.

THE RESEARCH AGENDA

A main concern with these developments in business and industry as well as education is the need to learn from these real-world, natural experiments occurring right before our eyes. At a recent online discussion of the transformation of the classroom in higher education, there was an observation of one panellist that captured a shared sense that very little systematic empirical research is being done to track and assess developments. This seems to be the case. A far more ambitious research agenda needs to be developed as soon as possible.

Of course, there is a body of research on the lessons learned from electronic meetings and online education over the decades. There have already been reports on early experiences with online education following the spread of COVID-19.[17] There are early predictions of likely financial and pedagogical implications. And many discussions within and across disciplines about how to teach online.[18] But more systematic empirical research on actual impacts needs to be undertaken.

This is the time to capture the lessons being learned by business and higher educational institutions over the coming months and years, initially by developing a strong research agenda. Since public research funding tends to rely on business to sort out its own issues and priorities, let me focus more attention on education as a key institution requiring more focused public research.

For a start, educators should be talking to those

KEY CHALLENGES FACING ONLINE EDUCATION AND LEARNING

● Training – The rapid transition in response to the pandemic is pushing many educators and students into the use of tools and techniques that they did not choose and have not been trained to use.
● Tools – The tools and platforms are often slow and clunky and seldom up to speed with the commercial platforms used by most internet users.
● Outcomes – We don't really know how to do online education in a way that is successful in motivating and holding students, leading to low retention rates.
● Context – So much of education is not simply the transfer of information, including social comparison with other students, learning from peers, and being inspired by teachers and fellow students.
● Ecosystem – The business model of campus-based educational institutions does not translate to online education, which undermines high tuition fees, diminishes student housing and service income and requires team support.

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at innovative institutions of higher education. Even quite traditional universities, such as Oxford, have been doing online education, such as through their Department of Continuing Education, for decades.[19] There are also major online universities, for example, and universities that have been founded and have years of experience in remote or distance education, such as a set of open universities like the Open University of Catalonia (Universitat Oberta de Catalunya) and the first Open University (OU) which is based in the UK. Can we learn from them?

These pioneers know the challenges of online and other remote teaching and learning, such as the difficulties of synchronous sessions when many are in the workplace or involved with childcare. They have learned and responded to the expectations of today's students for multiple media in presentations, including not only text but pictures, case studies, videos, games, audio recordings, virtual laboratories and more, although varied by the course and appropriate to the discipline. There is no such thing as one form of online class, when how teachers approach a chemistry class will be very different from a maths or a philosophy course.

The OU has dealt for decades with issues of web accessibility and digital governance given the mode of teaching and learning, which campus-based universities would have to address if more of their teaching was done online. The OU and other open universities have found it critical for teams rather than individuals to build courses, given the different skill sets required for the content and its delivery. Traditional campus-based courses are still delivered primarily by one faculty member, possibly with teaching assistants, rather than a team with multiple backgrounds.

More importantly, given the range of approaches taken by over four thousand universities (degree-granting post-secondary institutions) in the USA alone, this coming academic year should provide an unparalleled opportunity to discover what works well across different kinds of courses and institutions. There will still be problems with such

issues as self-selection, with universities making decisions on whether to go online or follow other models. However, this is a common problem of comparative research that should not prevent valid studies.

Major research councils should be calling for grant research on the impact of changes underway in higher education, if not also in business and industry, which are also critical to the public's interests. Surely this is being done, but I have not found major empirical research projects in this area that go far beyond counting who does what. Universities might be good at doing research, but very few institutions are good at critically researching themselves. University education is a cooperative but also a competitive enterprise. That said, education departments at major universities around the world must see this as a once-in-a-lifetime opportunity to study the impact of major innovations in higher education. And there is a sizeable number of academics with a focus on online and educational innovations that could step up to meet this need.

In short, the conversation should quickly be shifting from how universities will respond to this crisis to the development of empirical research on what different universities have chosen to do, how these strategies were actually implemented, and with what impact on learning, education, and the larger institution. This is not a new set of questions for the field, but this is an unprecedented opportunity to gain systematic empirical evidence from field research and interviews with those at the leading edge of (mass) remote teaching.

It is not too late to be focusing on the development of an ambitious research agenda for education post COVID-19. I cannot think of a more important focus for researchers with experience and a focus on learning and education. The lessons learned should have relevance well beyond education and inform decisions in many other sectors, including business and industry and government and politics.

CONCLUSION

I have only touched on many issues but hope to have moved some people away from wondering which is better: virtual or real face-to-face communication. That is not the right question. Where should you be and who should be co-located with you is closer to the right question. However, far more research on these issues is required across multiple institutions in order to have evidence in support of such critical decisions as where you should locate and how you should communicate with whom. The pandemic has created an unprecedented opportunity for research on these issues if the time and resources can be focused on these enduring issues relating to the media and the geography of communication.

In the 1970s, research on telecommunications was driven by different crises. In the US, the oil crisis of 1973 created support for research on telecommunication-transportation tradeoffs.[20] Could videoconferencing and other telecommunications be used to reduce travel? Research found that telecommunication most often rose with travel – people tended to communicate from a distance with those they had met or were going to meet in person. In Japan and the UK, research was driven more by a priority placed on reducing the congestion tied to the concentration of business and industry and governmental operations in Tokyo and London.
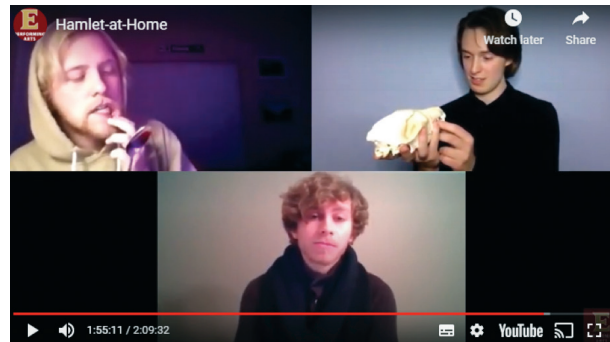
The answer for students of performing arts was "to be" online when it came to performing Hamlet during COVID-19. Credit: Elon University

Could teleconferencing enable offices to move outside the central city to the regions to support more even economic development and reduce congestion in the central cities? In Japan, this was referred to as the Tokyo Problem.

Perhaps in the coming months and years, research can again respond but to a different crisis – the coronavirus pandemic as well as the climate crisis – to advance greater research on the media and geography of communication. Decisions are being made across all sectors of the economy, but they are often not based on real evidence of the actual impacts of WFH or online education for different people across different institutions.

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This article has been prepared for InterMedia and is based in part on an earlier version distributed through the author's blog at BillDutton.me

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