

CONTROL, ALT, JUDGE

Shifting in-person hearings to fully-virtual formats is like switching disciplines in a triathlon. Many of the core mental skills are the same but the execution is very different. The online environment places higher taxes on our cognitive resources while driving up the difficulty level in interpersonal communication. This paper considers the psychological implications of virtual hearings and proposes practical tips on how to optimise the online experience.



Virtual hearings were virtually unheard-of mere months ago. Now parties need to explain why they aren't appropriate, as the world strives to function amid a global pandemic. In England for example, parties are required to 'examine rigorously' the possibility of a remote hearing before the Court will grant an adjournment.¹ Even complex, multi-party litigation and billion-dollar international arbitration cases are shifting online to avoid indeterminate postponement – because justice delayed is justice denied.

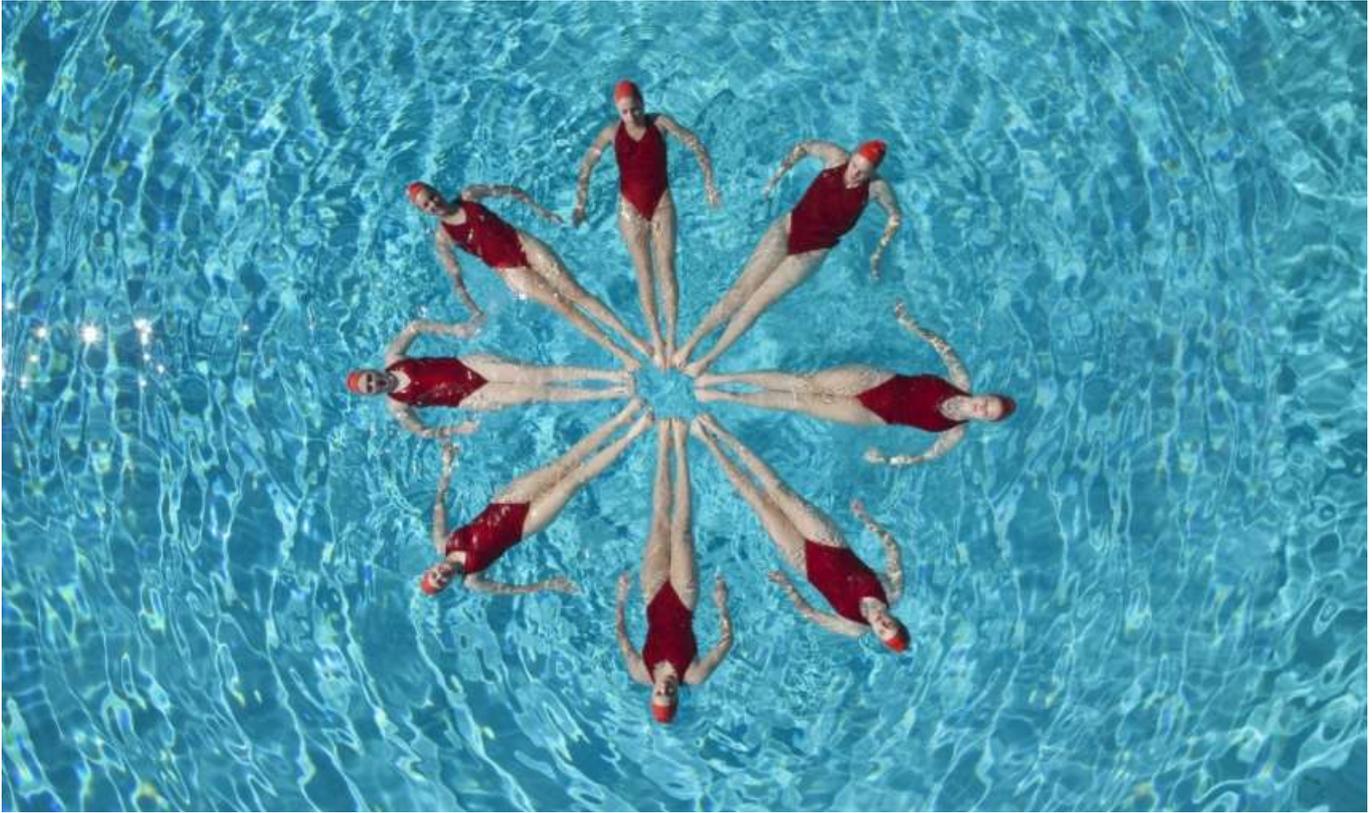
The lived experience of virtual trials is worlds apart from their physical equivalent. This naturally raises questions about the impact of the online

alternative on the resolution of disputes. What effect do remote hearings have on the thinking and behaviour of the decision-makers? How persuasive are advocates online? What causes these differences and is there anything we can do to mitigate their effects?

Put simply, virtual hearings are harder on our brains. Lengthy video conferences are exhausting. This was the overwhelming outcome of the ad hoc global experiment that took place when the world moved online at the start of 2020. Such is the prevalence of this experience, it has even earned its own nickname: *Zoom fatigue* – though the effect applies across all video platforms. For those engaged in the formal

resolution of disputes online, this phenomenon goes far deeper than a cute moniker or a Sunday op ed. The extra strain that virtual interactions place on our cognitive resources has repercussions for the way cases are communicated and received.

This paper explains some of the major factors that are responsible for the fatigue we feel during virtual hearings, together with their consequences for our thinking. Following this analysis, we propose a number of practical measures that judges, tribunals, counsel and parties can adopt to guard against these effects and optimise their experience of online dispute resolution.



DELAYS ON THE LINE

We have evolved over millennia to interact with others in real time. This instinctive process involves our brain carrying out very complex, finely-tuned calculations which assume that vision and sound are synchronous. Video conferencing disrupts this basic process.

Even with the best of internet connections, communicating over video-link introduces a gap between what is seen and what is said (technically termed *drift*). This means that the brain has to run a slightly different computation to achieve the same output.

Calculations enabling comprehension in virtual vs live environments	
 Live interaction	Vision [Time A] + Sound [Time A]
 Virtual interaction with drift	Vision [Time A] + Sound [Time A + 0.5 seconds]

This takes effort, which is why it’s distracting. The act of paying attention becomes a conscious act of will, not only on the content but also on the mechanism of assimilating the information.

We’ve all seen videos where the audio falls out of sync with (and usually behind) what’s playing on screen. This often happens when a laptop runs low on battery while Netflix is streaming. It’s jarring and uncomfortable. We don’t like it because it cuts against what millions of years of evolution have designed us to see. We can adapt though, because the drift in that situation is usually stable. This allows our brains to adjust the calculation to the predictable asynchronicity. Virtual hearings are far harder for us because the visuo-audio drift is variable. We therefore need to update our computation constantly (which takes effort) just to make sense of the speaker on the screen.

Transmission delays (i.e. the longer-than-usual silence before someone starts speaking) have also been found to impact the way the speaker is perceived – with unfavourable conclusions drawn about their personality. In a 2014 paper in the International Journal of Human-

Computer Studies, listeners were perceived as less attentive and less conscientious when there was a technically-caused audio delay in the range of 1200 milliseconds (the design for this experiment used a setting involving multiple callers on a teleconference).²

★★★★☆

In May 2020, the UK’s Civil Justice Council conducted a rapid review of the impact of COVID-19 measures on court users, with a particular focus on remote hearings.

According to this report, technical difficulties affected more than half of all virtual (video) hearings. Time lag and connection problems also caused communication issues, with parties often speaking over one another.³

Given these findings, the psychological impact of technical disruptions on the execution of virtual hearings clearly warrants consideration.

Video conferencing also disrupts the synchronicity that occurs *between* people when they are interacting. Effective communication is a complex and precisely-timed two-way dance of voice, eye contact, facial expression and gesture (technically termed *interactional synchrony*). Achieving synchrony along these dimensions is something we strive for when we are conversing with another person. This is such a basic feature of our system, even newborns synchronise their movements to an adult care-giver’s speech (*linguistic-kinesic interaction*).⁴

Excellent communication skills are essential to effective advocacy. Virtual hearings disrupt these in more ways than one. Not only is this tiring for all participants, it will also reduce an advocate’s impact and influence. Smooth interactional synchrony between advocates and decision-makers is an impossibility when there are delays on the line. This imperfect experience has knock-on costs for the high-stakes interpersonal communication required during hearings.

WRITTEN ALL OVER THEIR FACE

There is also far less information for us to go on in virtual environments. This means we have to work harder to fill in the blanks.

When we speak to someone in person, there are masses of non-verbal signals that we take in automatically. These cues include subtle facial movements (a raised eyebrow or pursing of the lips), shifts in body position (crossing the legs towards or away from someone, or fidgeting during speech), hand and arm gestures, tone of voice and changes in our breathing (a sharp inhale and hold when we are preparing to speak). It takes no effort for us to process all of these cues and it largely takes place below our conscious awareness. These often-unintended signals lead us to a message different from the one being conveyed explicitly. The output of our subconscious processing therefore gives us a more accurate reading of the person speaking.

The downside to video-calls is that much of this extra-linguistic information is missing. If a speaker’s camera is angled to frame only the face or upper body, we miss the majority of their body language. Even subtle hand movements serve usefully to emphasise a point – a key technique for advocates. Similarly, we can’t easily tell when the judge or tribunal has the right document in front of them so timing submissions is tricky. We also have to work harder to perceive facial expressions, especially where the quality of the video-link is low. For counsel, this makes it harder to detect how an argument is landing, and therefore to refocus or adjust subsequent submissions for maximum impact.

Multi-participant settings within video platforms (*gallery view*) multiply this challenge because there are many more faces to comprehend – all of which are similarly cue-impoverished. Face perception is a highly specialised function of our visual system (see **Box 1**). We even have brain areas dedicated specifically to face processing (such as the fusiform gyrus in the temporal lobe).⁵ An important feature of this specialised

Box 1. Never forget a face

Face perception is a highly specialised function of our visual system. This is perhaps unsurprising given the biological and social salience of faces in human society. Knowing who we are looking at (friend or foe) and what they are feeling (facial expression) is critical for our survival. Converging evidence from multiple disciplines suggests that face perception is a very specialised mechanism.



From the moment we are born, we have an in-built preference for faces. Newborns are disproportionately interested in faces, and even orient their gaze more readily to rudimentary facial schematics (☺) compared to meaningless arrangements of the same black and white shapes.



Brain imaging studies show that we have brain areas specifically dedicated to face processing. When participants look at faces, there is significant correlated activity in the fusiform gyrus in the temporal lobe (sometimes called the *fusiform face area*).

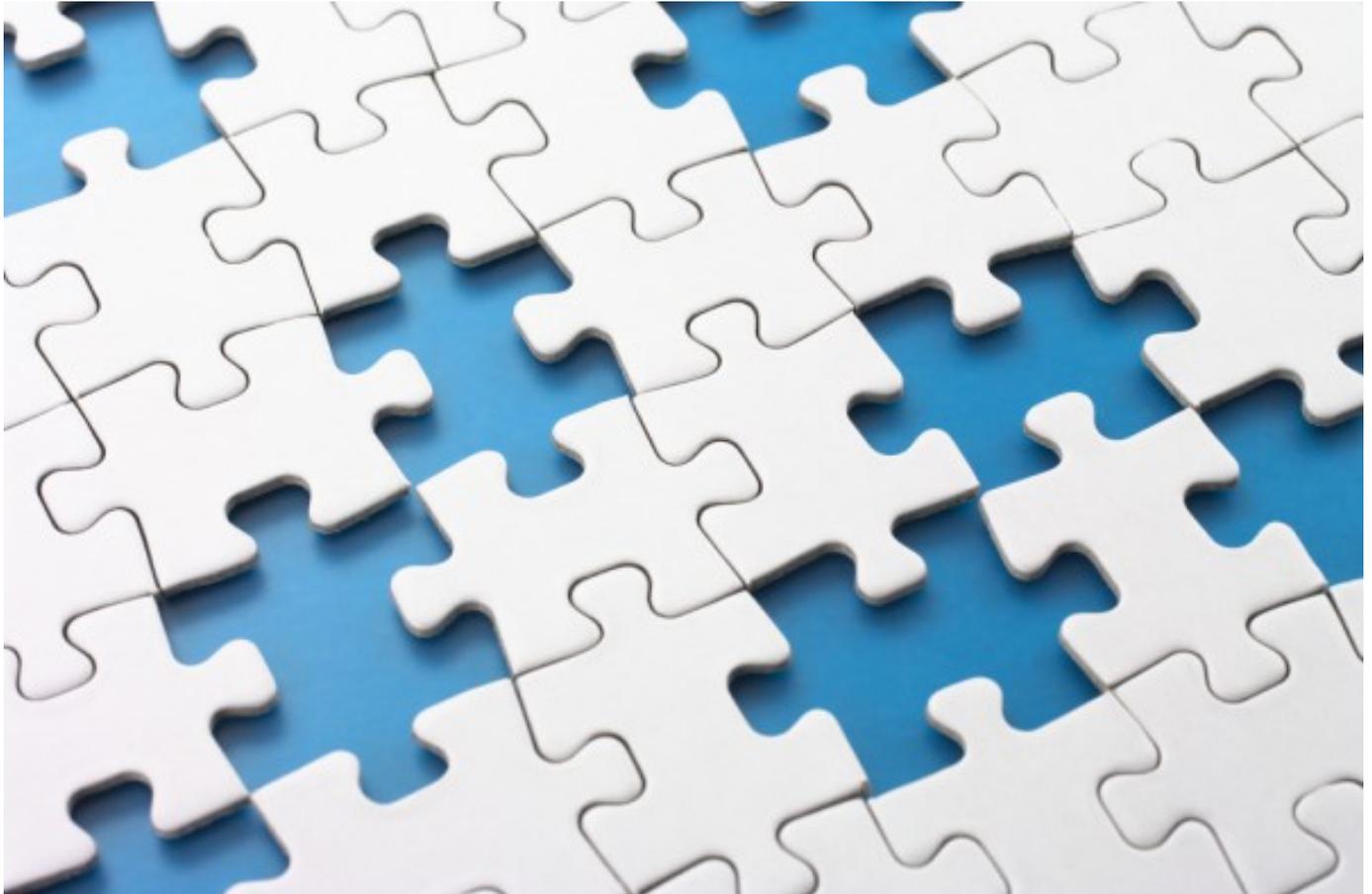


Studies of brain damage patients has also illuminated our understanding of face perception. If the fusiform face area suffers damage bilaterally (on both sides of the brain), patients have difficulties recognising and processing faces – a condition called *prosopagnosia*.



Faces also hold unique power when it comes to capturing our attention. Behavioural studies demonstrate myriad ways that a face (photograph or schematic) disrupts performance of a task by momentarily arresting our attention. If you want to catch someone’s attention, nothing does it better than a face.

Understanding faces is extremely complex. They are an incredibly rich source of biologically-important data (identity, age, gender, mood, gaze-direction). As a result, processing faces involves the coordination of several different neural networks spread throughout the brain. These include not only visual systems but our emotion processing systems too.



system is that we have a limited capacity for processing faces. In fact, research suggests that we can only properly process one face at a time.⁶ This makes it very hard for us to deal with multiple faces at once (hence the challenge in *Where's Wally/Waldo?*). We are therefore forced into a state of hyper-focus, trying to pick up on any cues we can to help us understand the suddenly unintelligible scene. It's like trying to join the dots where half the dots are missing and the other half are faint or hard to see. In essence, we have to do much more work to achieve a lesser result, which is draining on our system.

These peculiarities of video conferencing may cause less comparative detriment in the context of virtual hearings (compared to other online interactions) because of the way hearing rooms are physically arranged. For example, a bench often obscures the judge or arbitrator's lower body meaning that there is usually less body language to read. Also, for much of the time, the judge or arbitrator's visual focus is on the documents in front of them rather than on the face or gestures of the advocate. The stylised nature of

oral advocacy may also lessen the negative impacts of video conferencing on interpersonal communication. Spoken advocacy is a strange hybrid between acting and public speaking – certainly unlike ordinary conversation. All of these idiosyncracies aside, the marked absence of non-verbal cues will inevitably impact the way a speaker is perceived on video conference in the context of virtual trials.

The perception of witnesses is another matter entirely, and will be dealt with in detail in a separate paper.

DRIVEN TO DISTRACTION

Of course, there is also straight technical failure. A screen freeze or a drop in connection. There is simply no comparison for this in real life. No-one switches all the lights off part-way through a hearing. Lead counsel doesn't fall through a trap door only to re-appear several (painfully slow) seconds later.

Technical glitches of this nature clearly interrupt the flow of submissions or

questions in cross-examination. They also break our focus, requiring us to switch our attention. This mental process is cognitively expensive. It takes time for us to break focus from the original task, change focus to the interruption and then refocus on the original task.

A closely related phenomenon in psychology is "task-switching", an important executive control function. Aside from costing time, the research also shows that switching to a secondary task leads us to make more mistakes in the main task.⁷ This has obvious implications for virtual hearings where decision-makers and counsel frequently flip their attention back and forth between documents, witness statements, demonstratives and advocacy or testimony – all of which are displayed on screens.

One common misconception worth mentioning here is the myth of multi-tasking. Technically, we can't actually do more than one thing at once (with the exception of certain physical activities in which we are proficient). More precisely, we can't perform more than one

cognitive task at a time. When we appear to be doing multiple things at once, what we are actually doing is switching our attention (albeit very quickly) between them. This is another reason why bringing up a document in an electronic bundle may cost us more cognitively than opening the relevant page in a hard copy.

TO SEE OR NOT TO SEE

There is a limit to how much visual information we can process at one time (see **Box 2**). Fortunately, our ability to focus our attention allows us to sift the signal from the noise (*selective attention*). Unfortunately, that same ability to direct attention is also limited in capacity. This effectively creates a bottleneck, restricting the flow of information that reaches our awareness.

Another key feature of our attentional system is that the harder the task, the more of our (limited) resources are consumed. This means that when we are engaged in a highly demanding task, we are less able to process information outside of our specific focus.⁸ As we practice, and the relevant task or skill becomes easier, the cognitive load reduces (a process referred to as *automaticity*). Learning to drive is a great example. Initially, accelerating away at the lights takes all of our cognitive effort. By the time the L-plates are off, listening to the radio or having a conversation while we shift through the gears feels effortless.

Without doubt, virtual trials place enormous strain on our cognitive



resources. This is particularly so because the set-up is unfamiliar. Multiple screens are required (hearing room, electronic bundle, live transcript, plus speaking notes and team communications for advocates). Actions must be taken just to speak (muting and unmuting). Screens are already a regular feature in many physical hearings but the extent of their use in virtual hearings creates the greater difficulty. Even turning up a particular document requires interaction with a screen in fully virtual hearings with e-bundles. Similarly, while decision-makers and advocates may be well-accustomed to using microphones for the purposes of transcript recording,

the twist with virtual trials is that if you forget to switch your mic on, interruption to the proceedings may be longer. Forgetting to switch your microphone off also risks participants overhearing private comments.

This happened recently in an English case in the family courts where a judge was overheard making critical remarks about an appellant's evidence after the court had risen. While the comments were clearly intended to be private, the Court of Appeal concluded that they fell on 'the wrong side of the line' and demonstrated a real possibility of bias. This accidental broadcast across the

Box 2. The invisible gorilla



The human brain is hands down the most powerful super-computer on earth, but its capacity for processing information is severely limited. This is a problem in the data-rich world we inhabit. Despite our subjective impression of the world as continuous and complete, surprisingly little reaches our awareness at any one time.

In one stunning experimental demonstration, participants failed to spot a fully-visible person in full fancy-dress passing directly through their field of vision.

- Participants were asked to count the number of times a basketball was passed between players in a short video-clip. Part-way through the clip, a person dressed in a gorilla suit walked across the screen passing through the centre of play.
- Despite being visible on camera for several seconds, around 50% of participants failed to see the gorilla, a phenomenon called *inattention blindness*.¹⁰

This happens when participants' limited pool of attention is consumed by the primary task (e.g. counting ball passes), leaving none left over to process task-irrelevant information.¹¹

remote system meant that the judge had to be replaced and fresh procedures begun.⁹ For many reasons therefore, attending to and juggling so much technology is clearly harder than handling the real-life setting.

But just how much does this environment tax our system? Certainly, our comfort level with the tech and our familiarity with the new set-up will play important mediating roles. As with any new skill, participants will inevitably improve with practice. For hearing participants who may be starting from a lower base however, the learning curve will be steeper. Moreover, some aspects of “difficulty” are inherent in the system (e.g. trying to understand a speaker in the absence of non-verbal cues).

The obvious consequence is that, compared with physical hearings, we have less capacity to absorb information during virtual trials. This will inevitably impact performance and decisions. Those relatively unfamiliar with video conferencing or distracted by technical issues may simply miss points of fact or argument where they wouldn’t in a live setting. For advocates, it will be harder for team members to catch their attention to deliver crucial messages while they are crossing a witness or delivering submissions. There is no way to filter by priority messages that are flying back



and forth in a team WhatsApp group chat. As anyone with hearing experience will attest, there is simply no replacement for a furiously-scrawled sticky note thrust under counsel’s nose to get their attention. Post-it Notes in hearings are like pencils in space; sometimes the simplest solution is the best. Lead counsel attending hearings remotely (and alone) are therefore fielding much more than they can be expected to handle. This can be critical in large, complex cases where they rely on

different members of their team for the nitty-gritty details about particular aspects of the case. It is no surprise then that the majority of participants feel that remote hearings are less satisfactory than their in-person equivalent. The main reason counsel cite for this unfavourable contrast is the negative impact virtual separation has on their ability to communicate with their team (legal and client).¹²

PRACTICAL SUGGESTIONS FOR JUDGES, ARBITRATORS, COUNSEL AND PARTIES

Shifting from live hearings to virtual is like switching disciplines in a triathlon. While many of the same core mental skills and aptitudes will serve well in the context of virtual hearings, the execution is very different. As the scientific literature above illuminates, the online environment places different burdens on our cognitive system and presents unique barriers to interpersonal communication. Some of these idiosyncrasies are inherent in the system but others can be minimised, if not overcome. This section presents a number of practical suggestions based on the scientific learning discussed in this paper, designed to address some of the psychological challenges presented by virtual hearings.

	<p>Explore hybrid hearing arrangements</p>	<p>Lockdown and social distancing rules are in constant flux so any physical arrangements may need to be finalised close to the hearing date. As far as fairness and social distancing rules allow, however, consider hybrid physical/virtual arrangements. For example, is it feasible for all tribunal members to meet and sit physically in the same room, with a dedicated IT technician on hand? Can judges dial in from the court rather than their homes, where hardware and internet connection may be more unreliable?</p>
	<p>Optimise internet connections</p>	<p>Do as much as you can to reduce asynchronicity in your video-link. If you are working from home, these can be simple changes. Opt for the best internet package with the best provider for your area. Make sure you have the most powerful router. Connect directly to your router rather than rely on wi-fi and use new, short cables to do so. These measures impact not only your experience, but that of the other participants too. If there are concerns that sub-optimal connections may interfere with link quality, consider codifying basic standards within procedural orders to facilitate fair and effective hearings.</p>

	Optimise tech devices	In the same vein, the higher resolution your screen, the more life-like the representation of the participants. A large display monitor will make better viewing than the average laptop- or notebook-size screen. Equally, the standard of your microphone will influence the way you come across. Invest in a high-quality computer microphone to maximise your impact. Pavarotti wouldn't use anything other than a concert standard mic, and marginal gains matter when the stakes are high.
	Timetable shorter hearing days	Hearings that run on into the evening are unlikely to be an effective feature of online dispute resolution. Consider the fatigue factor involved in virtual environments and its consequent impact on mental performance. Professional decision-makers may also be less accustomed to significant daily screen time. Those dialling in from different time zones will also be grateful (the impact of time zones in the context of virtual hearings will be considered later in this series).
	Mandate more breaks	Research shows that short breaks neutralise some of the effects of fatigue on performance across multiple domains. In the cognitively-demanding context of virtual hearings, breaks are more crucial than ever to help decision-makers and counsel stay fresh and alert. Pausing the proceedings also gives counsel invaluable time to consult with their client and team (remember to mute the mic!).
	Interjection protocol	Advocates must be able to catch the attention of the judge or tribunal when they want to interject (ideally without interrupting opposing counsel). For this, create a simple mechanism that is visually salient. Colour and motion are both very effective at capturing attention. Advocates could wave a bright red card in front of their camera signalling that they want to speak.
	Document-handling protocols	Decide in advance how documents will be handled during the hearing. Displaying on screen every document a speaker refers to will break the flow of submissions. This is bad for both communication and comprehension. Ideally, hearing participants will have control over their own electronic bundle (which they can highlight and annotate as they wish). Similarly, agree in advance a protocol for dealing any new documents that need to be handed up during the hearing. Make the process as simple as possible, ensuring that everyone has access to the same information at the same time.
	Training	Institutions that support decision-makers (judges and arbitrators) could offer specific training to help them handle both the hardware and software required for virtual hearings.
	Testing	For large, complex hearings, a short dry run attended by all participants is advisable to test the technology set-up. This will serve to resolve any glitches ahead of time and to provide familiarity with the virtual arrangement.
	Practice, practice, practice	Then practice some more. To combat the cognitive drain of operating online, arbitrators/judges and counsel need to feel as comfortable as possible in the virtual environment. The only route to achieving this is practice.
	Minimise digital distraction	If you are using your usual work laptop, close all applications other than those that are necessary. At the very least, switch off pop-up alerts so that nothing competes for your attention during the sitting. The same restrictions apply to Smartphones. The goal is to keep to an absolute minimum any other technology that may cause you to switch your focus of attention.
	Case manage carefully	Parties, counsel and decision-makers should all consider carefully what the case requires and be prepared to make different procedural decisions. Does the hearing need to happen at all? Can anything be disposed of on the papers? Can the proceedings be bifurcated? Is a telephone hearing (audio only) suitable instead?

SPECIFIC TIPS FOR ADVOCATES

	Optimise camera angle	Ensure that your hands and arms are visible when you are delivering submissions. Allowing the judge/tribunal to see your hand gestures will enable more effective communication. Head and shoulders only will sacrifice important body language cues.
	Effective flagging system	If social distancing allows, sit in the same room as your core team. If this isn't possible, you will need a good replacement for the sticky note! Something which allows your team to grab your attention in an emergency, even when you may be speaking. Create a visually distinctive alert that (silently) pops up on all of your screens. Or have a separate screen specifically for urgent points from the team. Faces capture our attention more powerfully than anything else – even simple representations of them like emojis – so include one in your alert 😊 This emergency warning system must be used sparingly so you don't become habituated (psychologically immune) to it or tune it out with the other noise.
	Simplify	Chunk down and simplify your submissions even more than usual. Sign post more frequently. Amp up basic advocacy techniques. Speak slowly. Speak clearly. Pause. Look into the camera not your screen to mimic eye contact. (More specific advice about how to increase onscreen presence will be covered later in the series.)
	Monitor reactions	Choose a dedicated team member to monitor the facial expressions and other reactions of the judge/tribunal throughout the hearing. This is important for guiding subsequent submissions and directing your focus in real time during cross-examination.
	Use visuals	Use visuals where perhaps you wouldn't in a live hearing. Anything to help convey your message more clearly. Pictures, diagrams, flow-charts and other demonstratives. Directing attention elsewhere on the screen saves the judge/tribunal from processing any asynchrony between your image and your voice. Audio is better than audio + visual out of sync.

RUNNING ON EMPTY

There is very little research specifically addressing individual (or team) performance in the context of live video conferencing. This is changing rapidly. The Virtual Human Interaction Lab at Stanford recently launched a large-scale study into the effects of this technology. Notwithstanding this lack, if we apply what we know about the way humans communicate and process information, it's easy to see that the unique challenges presented by virtual trials will have significant impacts on all participants.

Some of these challenges may be overcome with practice and other practical adjustments but some are inherent in the (existing) technology. All place great demands on decision-makers' and advocates' most important asset. However, just as science educates us on the reasons behind dreaded Zoom fatigue, science can also provide us with (some) solutions.

The next papers in this series examine the potential impact of the unique social and emotional features of online hearings, the implications of virtual trials for witness testimony and the factors that affect advocates' screen presence.

NOTES

1. *Municipio de Mariana & ors v BHP Group Plc & anor* [2020] EWHC 928 (TCC) at [24]. The English Court in this case identified five general principles guiding the choice between adjournment and a virtual hearing. Ultimately, the question of whether or not a dispute can be resolved fairly by virtual trial will be case-specific, with a multiplicity of factors bearing on the decision. Similarly, in *Re Blackfriars* [2020] EWHC 845 (Ch), the English High Court rejected an application by joint liquidators to adjourn a five-week trial because of the COVID-19 lockdown restrictions. The judge ordered the parties to cooperate to explore ways in which a fully remote trial could take place using video conferencing and electronic bundles. Courts in other jurisdictions have also embraced the possibility of virtual hearings (with recent cases in Singapore and Hong Kong, among others).
2. Schoenenberg, K., Raake, A. & Koeppel, J. (2014). Why are you so slow? – Misattribution of transmission delay to attributes of the conversation partner at the far-end. *International Journal of Human-Computer Studies*, 72(5), 477-487.
3. Byrom, N., Beardon, S. & Kendrick, A. The impact of COVID-19 measures on the civil justice system: report and recommendations. Civil Justice Council & The Legal Education Foundation. May 2020. (*CJC Review*)
4. Condon, W. S. & Sander, L. W. (1974) Synchrony Demonstrated between Movements of the Neonate and Adult Speech. *Child Development*, 45(2), 456-462.
5. McCarthy, G., Puce, A., Gore, J.C. & Allison, T. (1997) Face-specific processing in the human fusiform gyrus. *Journal of Cognitive Neuroscience*, 9(5), 605-10.
6. Bindemann, M., Burton, A. M. & Jenkins, R. (2005). Capacity limits for face processing. *Cognition*, 98(2), 177-197.
7. See, for example, Rogers, R. & Monsell, S. (1995). The costs of a predictable switch between simple cognitive tasks. *Journal of Experimental Psychology: General*, 124, 207-231.
8. See, for example, Lavie, N. (1995). Perceptual load as a necessary condition for selective attention. *Journal of Experimental Psychology: Human Perception and Performance*, 21, 451-468.
9. *C (A Child)* [2020] EWCA Civ 987.
10. Simons, D. J. & Chabris, C. F. (1999) Gorillas in our midst: sustained inattentive blindness for dynamic events. *Perception*, 28, 1059-1074.
11. Cartwright-Finch, U. & Lavie, N. (2007) The role of perceptual load in inattentive blindness. *Cognition*, 102(3), 321-340.
12. See the CJC Review, *ibid* note 3.



Dr Ula Cartwright-Finch is Managing Director of Cortex Capital. She is also a Visiting Researcher at University College London, Visiting Lecturer at Queen Mary University of London and Visiting Lecturer at Humboldt University of Berlin. She has worked as a disputes lawyer for more than 12 years specialising in international arbitration and working from London, Hong Kong and Madrid. She also holds a PhD in Psychology and collaborates with leading researchers applying psychology to legal practice. Ula delivers training and advice to law firms and businesses using insights from behavioural science to help them perform and excel.