



TOWARDS A
DISTRIBUTED
COURTROOM

A Distributed Courtroom.
Watercolour illustration by Michael Blazewicz

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It has long been recognised that courtrooms are not depoliticised spaces; they are imbued with symbolic and cultural significance – from the elevated judicial benches designed to impose the gravity and authority of the law upon those present, to the segregated jury box, deliberately removed from the optical axis of bench, bar and gallery in order to convey impartiality. With this in mind, it is increasingly being asked how we can design our courtrooms to better reflect our principles of justice. We have seen this in the movement away from Victorian architectural principles, motivated more by punishment than by reformation, which sought to isolate and shame the accused, towards “democratic design principles”, with planning guides now focussing on dignity and therapeutic and restorative justice.

The latest dimension of court design is, of course, technology, with the introduction of electronic filing, audio visual links, digital court reporting, video conferencing, social media feeds and live-streaming, technology has the capacity to bring both opportunities and dangers to the traditional courtroom. The Distributed Courtroom presented in this report represents the intersection between architecture and technology, with a focus on sightlines and soundscapes but in a digitally mediated environment in which physical distances are manipulated.

Although judges are often portrayed as luddites, resistant to the ever-moving rapids of the technological age, from the perspective of Australian courts, we are very much willing to embrace the efficiencies and improvements that technology can offer. That is not to say, however, that courts should dive blindly into the electronic world without first considering the impact that such changes will have on our well settled principles of justice and on the adversarial trial that sits at the centrepiece of our legal system.

It is in this respect that this report makes significant contributions to the legal field, by evaluating the impact of technological developments on the administration of justice and all of its participants. The concerns expressed in this report – guaranteeing the safety of vulnerable witnesses, safeguarding the presumption of innocence for defendants, ensuring access to, and communication between, legal counsel, facilitating the proper assessment of evidence by fact-finders and preserving the authority of the court – are the measures by which we must assess such technologies.

We must be mindful that the features of courtrooms, from architecture to technology, not only create the setting for justice; they can be instrumental or detrimental to it. The contributors to this report should be commended for bringing that issue to light.

The Honourable T F Bathurst AC
Chief Justice of NSW



The Distributed Courtroom research project was developed by a team of academics in law, psychology and sociology at three Australian universities¹. Building on a partnership developed for an ARC Linkage research project² that explored the prospects for a 'wireless courtroom'³ and a pilot demonstration performed in Brisbane, the Distributed Courtroom field experiment in the North Sydney Court provides the NSW Department of Justice (DoJ) and specifically the Audio Visual Links (AVL) project with empirical evidence on the impact of immersive technology on court proceedings.

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² Industry partners for this project are the NSW Department of Justice, the Western Australia Department of the Attorney General, Diane Jones from PTW Architects, Mariano DeDuonni from Hassell Architects, Paul Katsieris from Katsieris Origami, Graham Turnbull SC from Forbes Chambers, and Rod Louey-Gung and Mark Hanson from ICE Design. The research team for the Linkage project comprises Rick Sarre (Uni SA), Blake McKimmie (UQ), Emma Rowden (UTS), Meredith Rossner (LSE – UK), Mary Rose (U Texas), David Tait (WSU) and Laura W. McDonald (WSU).

³ *Just Spaces: security without prejudice in the wireless courtroom* Australian Research Council Linkage Project (LP120200288).

INTRODUCTION

Digital technology is transforming justice processes just as it is changing almost every other aspect of social life. Court users expect the same convenience and easy access they find in banking, purchasing goods on-line, booking a taxi or an uber, buying theatre tickets and planning holidays. While justice is in a sense a 'service' like those listed, it is also a public good that is concerned with protecting rights and freedoms, helping to create personal and community safety and providing a public forum in which disputes and grievances can be resolved. The tension between seeing court users as **consumers** and **citizens** is reflected in the debates about the way technologies are used in justice processes.

They can make the consumer experience less stressful, more efficient and faster. They could also potentially give citizens better access to having their grievances or disputes resolved in a manner that is considered fair by the persons directly involved and by the community more broadly. Alternatively, the use of particular technologies could increase stress, produce delays and threaten fundamental rights. There is no necessary link between better technology and better outcomes either for consumers or citizens. The aim of this report, and the study on which it is based, is to strengthen that link – **to ensure that technology is used to improve both the consumer experience and citizen access**

Video technology, as currently used in courts around Australia, sometimes isolates witnesses, restricts effective communication and increases stress amongst people who are already vulnerable⁴. It can encourage disinhibited or inappropriate behavior. It may make it harder to effectively test the evidence, or assess the plausibility of the person appearing on the screen. Speakers may be unable to make eye contact; they often miss verbal or non-verbal cues and may be disoriented when the sound seems to come from a different place than the image on the screen.

The Distributed Courtroom model has been developed to address some of these problems. It tries to make the video-enabled hearing as similar to a face-to-face hearing as possible, in terms of supporting sightlines and soundscapes. It pushes the boundaries beyond the first generation of video conferencing by developing an immersive environment, with participants arrayed in logical places around the room rather than appearing wherever the screen happens to be located.

The proof of concept of the Distributed Courtroom can be seen in the McGlothlin e-courtroom developed by Fred Lederer in the College of William and Mary in Virginia, where screens are arrayed around the room directly behind the judge, prosecution and defence counsel, and witness⁷. If this generation of video technology follows the same path as its predecessors, it is likely to have a similar range of implementation problems, resulting in expensive delays for courts and inconvenience to users.

The Distributed Courtroom approach, however, also has an additional set of risks – if used for inappropriate cases it may undermine important rights, such as effective access to counsel, the presumption of innocence and the right to a public hearing. Consequently the **process** for developing new technology configurations is critical. It will necessarily involve close collaboration with users – in designing rooms, reshaping procedures, working out responsibilities, developing backup plans and testing out alternative approaches both in demonstration settings and live hearings.

⁴Gateways to Justice: Report : Design and Operational Guidelines for remote participation in court proceedings, http://www.uws.edu.au/__data/assets/pdf_file/0019/471223/Gateways_to_Justice_Guidelines.pdf.

⁷ Lederer, Fredric I. "Wired: What We've Learned About Courtroom Technology." *Criminal Justice* 24 (2009): 18.

INTRODUCTION

While this report focuses on the move towards virtual justice, with participants being physically dispersed, emerging technologies can also support an opposite trend – towards more face-to-face justice. Portable or mobile technologies allow some tribunals to visit remote or rural areas, with access to the full range of case file and background information, and providing the participants with printed decisions on the spot⁵. The Federal Court of Australia similarly holds some of its hearings on country for land rights matters, bringing with it a full range of court services.

The study did not test the use of display technologies at the same time as the presentation of faces. This is being examined in a separate but related study by the research team, using iPads. The general principle being developed in that study is that displays of documents or images can most easily be provided on individual devices, whether laptops or tablets, allowing the screens to be used to focus attention on the speakers' faces.

In order to ensure that emerging technologies are used most effectively, empirical evidence is first required to support the task of developing guidelines for appropriate use. Such guidelines must include technical specifications that reduce the technical failures so characteristic of the earlier generations of in-court technologies. They must also include information that will allow courts to make informed decisions about when it is appropriate to use such facilities and when it is not. In practice this means providing the judiciary, counsel, court staff and justice officials with the information they need to argue for particular technology outcomes or uses.

Some of the guidelines are, and will continue to be, incorporated into legislation or court rules and standards. For particular matters, it is likely there will be disagreements between parties about whether or not to use video links, with the resolution left to the presiding judge. This report tries to provide relevant information that can assist both the process of developing general guidelines for practice and dealing with specific applications.

⁵ David Tait and Terry Carney, "Transforming governance and technology in civil and administrative justice." *Journal of Judicial Administration* 22.3 (2013): 119-129.

BACKGROUND
DEFINITIONS



FIGURE 1

A Distributed Courtroom. Defendant and lawyer appear remotely via the screen on the left-hand side. Prosecutor and witness appear remotely via the screen on the right-hand side. Judge and jury physically present in the courtroom. Watercolour illustration: Michael Blazewicz

Distributed courts refer in this report to dispersed sites connected by video links to carry out justice processes. The sites linked together in this way could be courthouses, prisons, police stations, legal aid offices, judicial chambers or a range of other public or private facilities. Single participants routinely appear in courts by video link in all Australian jurisdictions – persons in custody, witnesses, police informants and judges. A distributed court model generalises this approach to bring in participants from two or more different locations simultaneously. Distributed environments for workplaces, learning and computer gaming are well-developed. The application to courts is taken from Christian Licoppe and Laurence Dumoulin, who looked at court hearings where the judge was based in Paris while the other participants were physically located in the small French territory of Saint-Pierre-et-Miquelon off the coast of Newfoundland⁶.

The **Distributed Courtroom** model described in this study tests a physical courtroom into which two different parties physically located in remote locations appear on screens arrayed around the court.

⁶ Licoppe, Christian, and Laurence Dumoulin. "L'ouverture des procès à distance par visioconférence." *Réseaux* 5 (2007): 103-140.

BACKGROUND

THE DISTRIBUTED COURTROOM

In an immersive environment, the parties can appear as holograms or on the 3D screens that are beginning to be available commercially. Immersive video environments have been available for meetings for some years, with business people interacting with their colleagues 'across the table', who appear life-size on screens from, potentially, several different sites around the world.

This study applies the same principles to a courtroom. We used flat 75" screens – the same quality that has become the standard in NSW courts. The Distributed Courtroom used here was in a disused local court in North Sydney.

The screens were angled so that the public gallery, where the 'jury' was seated, could look to the left to see the accused and the defence lawyer, look to the right to see the prosecutor and prosecution witness, and look straight ahead to see the judge who was physically present in the courtroom. The judge meanwhile looked to his right to see a smaller screen displaying the defence side and to the left to see the prosecution, giving the impression of eye-to-eye communication as if remote parties were present in the courtroom.

Each of the two screen configurations included a co-located loudspeaker to relay the audio associated with the remote participant video link. This allowed all participants and listeners in the courtroom to localise sound to the video image of the talker, adding realism and making it easier to know who was speaking at any given time.

The screen configuration was such that the remote party appeared to be making eye contact with the other lawyer, the witness or the accused on the opposite screen. Significantly, all the participants were looking in the same direction – towards the party that was speaking at the time. It contrasts with configurations found in many larger courtrooms in Australia where multiple screens result in participants looking in several different directions, and often looking away from video link cameras.

There are several practical advantages envisaged in making greater use of video links in court, including the development of a distributed court model, as part of the technological transformation likely to characterise courts of the future. These advantages include:

- Improved access to justice for justice participants for some types of matter in civil, administrative, protective or criminal proceedings.
- Lower risk of physical violence, intimidation and fear for vulnerable parties.
- Increased access to services, such as interpreting services, that might otherwise not be available on site at the court or tribunal
- Reduced time spent in travel for judges, prosecutors, defence lawyers, police informants, witnesses and court staff, potentially increasing the amount of time spent on hearings.
- Less stress for defendants in custody, avoiding prison transport trips, multiple strip searches, and waiting in prison holding cells⁸
- Reduced number of courtrooms, and in some cases smaller courtrooms, required to meet the volume of court business.

⁸This is one of the main justifications in the Netherlands for use of video links – it is considered more 'humane'.

BACKGROUND

LEGAL ISSUES IN THE DEVELOPMENT OF A DISTRIBUTED COURTROOM MODEL

There are several legal principles at stake in the development of alternative technologies for supporting justice processes, such as:

- The right to a fair trial for accused persons, including:
 1. The right to confront witnesses testifying against the accused.
 2. The right to effective representation including opportunities for co-location and ongoing consultation with legal representatives.
 3. Opportunities for the defence to challenge evidence against the accused.
 4. Preserving the presumption of innocence, including the accused appearing unfettered and unconstrained during the hearing.
- The right of accused persons to represent themselves.
- The right of victims to have their complaints heard in a safe and dignified process.
- Opportunities for the defence lawyer to confer with the prosecution or the judge.
- The right for the public to see justice done in a public forum.

The right to effective access to counsel may be threatened if remote defendants do not have their lawyers present with them. This could be because the lawyer is in the courtroom and the accused is in a prison video suite without a private communication channel to the lawyer. Or it could be because the accused is isolated from the lawyer in the courtroom due to courtroom design.

The right to 'confrontation' is one of the principles that could most directly impact the use of remote appearances by either witnesses or defendants, so it is worth examining in some detail. The principle is that both accuser and accused should be co-present for the trial, allowing the accuser to be questioned about their evidence.

As a fundamental principle of Roman law it was outlined by the apostle Paul in an exchange with Festus:

I told them that it is not the Roman custom to hand over anyone before they have faced their accusers and have had an opportunity to defend themselves against the charges⁹.

This passage was cited by the US Supreme Court in the 1988 decision of *Coy*¹⁰. The majority in this decision found that a screen used to prevent an accused person seeing the complainants in a child sexual assault case violated his right to come face to face with his accusers. As Justice Scalia graphically explained:

the purpose of the Confrontation Clause is ordinarily to compel accusers to make their accusations in the defendant's presence—which is not equivalent to making them in a room that contains a television set beaming electrons that portray the defendant's image¹¹.

The dissenting judges considered that confrontation simply meant the chance to test the evidence against the accused, the view shared by most Australian authorities.

US courts are cautious in their use of video conferencing for taking testimony, generally requiring each case to be justified in terms of necessity and a public interest¹².

In contemporary Australian courts the issue of confrontation comes up routinely in child sexual assault trials, where the accused does not generally have the right to 'confront' – directly question as a self-represented defendant– their accuser in person. The accused retains the right to have the evidence tested through cross-examination, but this has to be done by a lawyer.

⁹ Acts 25:16, Christian Bible, New International Version.

¹⁰ *Coy v. Iowa*, 487 U.S. 1012 (1988).

¹¹ Scalia, A. Statement on Amendments to Rule 26(b) of the Federal Rules of Criminal Procedure, 29 April 2002 at 2

¹² McAllister, Marc Chase. "Two-way Video Trial Testimony and the Confrontation Clause: Fashioning a Better Craig Test in Light of Crawford." *Fla. St. UL Rev.* 34 (2006): 835.

CONFRONTATION

In some situations, such as high security matters, organised crime or terrorism trials, the witnesses may be anonymous¹³. In one New Zealand case about a drive-by shooting, 22 witnesses testified anonymously, with those appearing by video link having their faces blurred and their voices distorted¹⁴. Pixilated video images are also used for protected witnesses in international criminal tribunals. Despite their anonymity, the evidence of these witnesses was subject to cross-examination.

Three other features of 'confrontation' have been identified in other US Supreme Court decisions: allowing juries to assess the demeanour of the defendant, ensuring witnesses present evidence under oath¹⁵, and the right for an accused person to be physically present at every stage of the trial¹⁶.

The issue of demeanour can be interpreted in terms of the opportunity for fact-finders to go beyond the words of the witness to the other aspects of communication. According to one widely-cited theory in psychology, words, tone of voice and body language communicate information in the ratio of 7:38:55¹⁷.

Whether the fact-finders can reliably interpret demeanour is strongly disputed, with popular assumptions about how to tell if someone is telling the truth shown to be false¹⁸. Tone of voice, however – including pitch, modulation, variation and timbre – could potentially provide information beyond that available from the words alone.

¹³ For a historical perspective on this issue, see: Kumar, Miiko. "Secret Witness, Secret Information and Secret Evidence: Australia's Response to Terrorism." *Miss. LJ* 80 (2010): 1371; Ward, Alan George. "Evidence of Anonymous Witnesses in Criminal Courts: Now and into the Future, The." *Denning LJ* 21 (2009): 67; Lusty, David. "Anonymous Accusers: An Historical and Comparative Analysis of Secret Witnesses in Criminal Trials." *Sydney L. Rev.* 24 (2002): 361.

¹⁴ Cole, David. *Secrecy, national security and the vindication of Constitutional Law*. Edward Elgar Publishing, 2013, p 196.

¹⁵ *California v. Green*, 399 U.S. 149 (1970).

¹⁶ This view is established by several US Supreme Court decisions, most significantly in *Illinois v. Allen*, 397 U.S. 337, 338 (1970).

¹⁷ Mehrabian, Albert. *Nonverbal communication*. Transaction Publishers, (1972).

¹⁸ McKimmie, Blake M., Barbara M. Masser, and Renata Bongiorno. "Looking Shifty but Telling the Truth: The Effect of Witness Demeanour on Mock Jurors' Perceptions." *Psychiatry, Psychology and Law* 21.2 (2014): 297-310; Blumenthal, Jeremy A. "Wipe of the Hands, a Lick of the Lips: The Validity of Demeanor Evidence in Assessing Witness Credibility, A." *Neb. L. Rev.* 72 (1993): 1157

In a mental health context, for example, the type of microphone used to record patient stories affects frequency spectrums of the recorded speech, impacting on the ability of therapists to distinguish pathological from normal voices¹⁹. It can be argued, in relation to evidence that transmission of voices by electronic means tends to flatten the sound, and limit the information provided to the fact-finders.

The issue of oaths relates to the likelihood that the witness will tell the truth. Making an oath in front of an assembled court could be argued to make a more powerful impression than sitting alone in a videoconferencing room looking at a screen. Further, where the witness is outside the jurisdiction of the court, the threat of sanctions for perjury may have less effect.

It is the third dimension of confrontation identified by the US Supreme Court that is most relevant in the context of the current project, that is whether defendants should be physically present at their trial. Most of the legal debates about use of video links in hearings refer to witnesses, which include defendants only if they enter the witness box. This concern focuses on both the reliability of testimony mediated via a video link, as well as potential loss of information to the fact-finders.

¹⁹ Parsa, Vijay, Donald G. Jamieson, and Bradley R. Pretty. "Effects of microphone type on acoustic measures of voice." *Journal of Voice* 15.3 (2001): 331-343.

²⁰ NZ Bill of Rights Act (1990), Section 25 (e)

BACKGROUND

PRESENCE

Or as the International Covenant on Civil and Political Rights specifies 'the accused has the right to be tried in his presence'²¹. This right is not absolute, with disruptive defendants able to be removed²². In NSW only part of the trial is explicitly identified as requiring the presence of the defendant: the accused has to be present 'when prosecution evidence is taken'²³.

But what does being 'present' at one's trial actually mean? In NSW, condition of 'presence' can be satisfied if the person takes part either by video or simple audio link²⁴. The only part of the process that explicitly requires the physical presence of the accused is when he or she is in custody and wishes to make a submission or give evidence about his or her own case²⁵. Otherwise the court may authorise evidence to be taken remotely if it would be more convenient and if it not deemed 'unfair' to any party. Vulnerable persons are explicitly given the right to testify remotely²⁷.

In relation to other parts of the criminal process, accused people in NSW do not have the right to appear in person for bail hearings or appeals: their entitlement to do so is 'taken to be satisfied' if they appear by video or audio link²⁸.

Why does it matter whether defendants are physically present in court? If a trial is primarily a fact-finding activity, and the defendant is a passive observer whose defence is entrusted to an advocate, why does he or she need to come to court every day? What is lost by appearing on a video screen in the courtroom and being able to follow the action on a screen in a video suite?

The presence of the accused however raises several somewhat different questions:

1. Does the accused have the right to be present at their trial?
2. Does the accused have the right to be present at other aspects of the process, including bail hearings, sentencing and appeal?
3. Does being 'present' mean attending in person?

Common law systems give defendants, as the New Zealand Bill of Rights Act puts it, the right 'to be present at the trial'²⁰.

²¹ International Convention on Civil and Political Rights, Article 14(3)

²² Canadian Criminal Code, section 650 (1)

²³ NSW Criminal Procedure Act, 1986, section 71

²⁴ NSW Evidence (Audio and Audio Visual Links) Act 1998, section 3A(1)

²⁵ *Id.*, section 5B

²⁶ *Id.*, section 5B(2)(c)

²⁷ NSW Criminal Procedure Act, 1986 section 306ZC.

²⁸ NSW Evidence (Audio and Audio Visual Links) Act 1998, section 3A(2) and (3)

There are several possible answers:

1. Jurors may look less favourably on an accused person appearing on a screen than in court, feel less empathy and be more willing to convict.
2. Judges may be more punitive towards accused people they see on a screen. A Chicago bail video court was discontinued in part because the level of bond set went up with remote hearings²⁹.
3. Seeing how defendants react to witness testimony may give the jury some insight into the veracity of the testimony.
4. Defendants' access to counsel might be impaired by being located away from their lawyer.
5. The defendant may not recognise the seriousness of the proceedings and may engage in disinhibited behaviour.
6. Sitting in a remote video link room for a lengthy period could be mentally exhausting and alienating for the accused. Coming to court gives the accused a chance to see family members and keep in touch with the world.
7. The dignity of the court process may be compromised if the main participant is not physically present, and the symbolic value of the trial undermined.
8. Without seeing the victim face to face, the accused (if guilty) will be less likely to come to terms with the harm caused by the crime and the suffering of the victims.

The first two issues are taken up in this study and provisional answers provided. Access to counsel is partly tested in the study, at least in terms of how it might be perceived by a jury. Disinhibition can be an issue for brief appearances such as bail, but these do not involve juries; in general this is a matter that is managed by counsel. Addressing the human needs of the accused is a serious challenge for courts as they increasingly assume a duty of care for all justice participants, including defendants in criminal matters. Dignity, symbolism and reconciliation are difficult concepts to measure, but they are fundamental to the legitimacy of the justice system and do need to be taken into account in any proposed changes to court practices.

These issues are rather different in character. Some deal with the ability of fact-finders to assess the evidence on its merits (watch defendant's reactions, possible bias against defendants not seen in the flesh); others with the authority of the court (dignity and seriousness); others with the effectiveness of the process (defendant recognising culpability).

²⁹ Diamond, S. S., Bowman, L. E., Wong, M., & Patton, M. M.. Efficiency and cost: The impact of videoconferenced hearings on bail decisions. *The Journal of Criminal Law and Criminology*, 100.3 (2010): 869-902.

PRESENCE

The stakes of getting it wrong vary considerably between cases. As one Canadian report concluded, immigration hearings are particularly sensitive, because if an asylum seeker is returned to a place of danger they may be tortured or killed³⁰. This argument might be extended to distinguishing between criminal cases where the defendant faces the risk of imprisonment and those where monetary sanctions are the norm; or between small claims matters in civil disputes and those where a person risks losing their home.

³⁰ Ellis, S. R. Videoconferencing in refugee hearings. Ottawa, Ellis Report to the Immigration and Refugee Board. (2004).

Courts are increasingly becoming network command centres³¹, with participants joining in from legal offices, judicial chambers, psychiatric hospitals or prisons, as well as custom-built remote witness facilities; witnesses testify in war crimes trials from across the world³². Images, written documents and data are transmitted in digital form as part of the justice process; the 'audiovisual court' promises to deliver richer and faster communication than traditional courts³³.

Do the participants experience 'sensory immersion' in video-mediated interaction³⁴; is the environment 'vivid' enough, or 'sufficiently rich' for the participants to find it believable³⁵? In other words, which factors promote 'telepresence'³⁶?

Subtle facial movements, non-verbal cues and peripheral actions, important for interpreting speech, are hard to detect in video-mediated communication; while audience response, essential for assessing how a message is received, is hard to gauge if only the remote interviewer is displayed³⁷.

Being able to see the gestures of a witness makes it easier to understand what they are saying³⁸; However the first generation of videoconferencing systems used in courts provided only views of the person's head and shoulders³⁹.

³¹ Lederer, F. "The Courtroom 21 Project: Creating the Courtroom of the Twenty-First Century." *Judges' Journal*, 43 (2004): 29

³² Dembour, M.-B. and E. Haslam. "Silencing Hearings? Victim-Witnesses at War Crimes Trials." *European Journal of International Law*, 15 (2004): 151-177.

³³ Bermant, G. *Courting the virtual*, National Center for State Courts, <http://www.judgeline.org/Insights/1999/Courting/index.html>. (2006).

³⁴ Kuzan, A. *Architecture and technology for an international virtual lecture theatre*, Zurich: University of Zurich, Master thesis in Information Technology (2003).

³⁵ Sallnäs, E.. *Presence in multimodal interfaces*, Stockholm: Royal Institute of Technology (2000).

³⁶ Mantovani, G. and Riva, G. "'Real' Presence: How Different Ontologies Generate Different Criteria for Presence, Telepresence and Virtual Presence." *Presence: Teleoperators and Virtual Environments*, 8 (1999): 538-548.

³⁷ Boyle, E., Anderson, A. and Newlands, A. "The effects of visibility on dialogue and performance in a cooperative problem solving task." *Language and Speech*, 37 (1994): 1-20.

³⁸ Driskell, James E., and Paul H. Radtke. "The effect of gesture on speech production and comprehension." *Human Factors: The Journal of the Human Factors and Ergonomics Society* 45.3 (2003): 445-454

³⁹ *Effective Use of Courtroom Technology: A Judge's Guide to Pretrial and Trial*. Federal Judicial Center, 2001.

PREVIOUS RESEARCH

Multiple screens, including a view of the audience provide a fuller context for remote interpreting, a task where attention to subtle cues is essential⁴⁰. High-definition and wider screens produce an increased sense of involvement and perceptual realism, with viewers more likely to report physiological reactions like an 'adrenaline rush'⁴¹. Eye contact between participants – even mediated by a camera – makes the interaction seem more real⁴², while seeing the full face of a remote participant rather than their profile makes them more persuasive to the audience⁴³.

Some visual cues can be replaced by information provided via another 'channel', such as a shared drawing space, electronic whiteboard or other collaborative tools⁴⁴, as well as making greater use of senses other than sight, like touch or smell⁴⁵. The quality of sound, meanwhile, may be even more critical than the quality of the images⁴⁶, with stereophonic or surround sound argued to have a strong impact on a sense of presence⁴⁷.

⁴⁰ Mouzourakis, P. "Remote interpreting: a technical perspective on recent experiments." *Interpreting* 8 (2006): 45-66.

⁴¹ Bracken, C. "Presence and image quality: the case of high-definition television." *Media Psychology*, 7 (2005): 191-205.

⁴² Bailenson, J., Blascovich, J., Beall, A. and Loomis, J. "Equilibrium theory revisited: Mutual gaze and personal space in virtual environments." *Presence*, 10 (2001): 583-598

⁴³ Lassiter, G. and Munhall, P. "Accountability and the camera perspective bias in videotaped confessions." *Analyses of Social Issues and Public Policy* (2001): 53-70.

⁴⁴ Lombard, M. and Ditton, T. "At the heart of it all: The concept of presence." *Journal of Computer Mediated Communication*, 3, (1997) <http://www.ascusc.org/jcmc/vol3/issue2/lombard.html>

⁴⁵ Tang, J. *Why do users like video: studies of multimedia-supported collaboration*, CA: Sun Microsystems (1992); Slater, M., Usoh, M., and Steed, A. "Depth of Presence in Virtual Environment." *Presence*, 3 (1994): 130-144.

⁴⁶ Wainfan, L and Davis, P. *Challenges in virtual collaboration*, Washington, D.C., RAND (2004), 22.

⁴⁷ Lombard, M. and Ditton, T. "At the heart of it all: The concept of presence." *Journal of Computer Mediated Communication*, 3, (1997) <http://www.ascusc.org/jcmc/vol3/issue2/lombard.html>.

How can participants learn to share information, develop trust and establish working partnerships in video-mediated interactions⁴⁸? What factors promote co-presence⁴⁹? The first step is proper preparation. Newcomers to many new activities perform more effectively and report more satisfaction if they are briefed beforehand about what to expect, given an orientation on arrival, and provided with a support person⁵⁰. Witnesses in video hearings are able to participate more effectively if they are introduced to other participants and 'warmed up' with some neutral questions by the prosecutor before they are subjected to cross-examination based on pre-recorded evidence⁵¹.

Contact with multiple participants in the remote site is likely to increase a sense of co-presence⁵². They also feel more involved if they receive feedback from others⁵³. From the point of view of the audience, such as a jury, these varied styles of communication may allow a more rounded impression of the remote participant to be formed, and provide some cues about the demeanour and physicality of the remote defendant⁵⁴.

⁴⁸ Gunawardena, C. N. "Social presence theory and implications for interaction and collaborative learning in computer conferences. *International Journal of Educational Telecommunications*, 1 (1995): 147-156.

⁴⁹ Casaneuva, J. and Blake, E. *Presence and co-presence in collaborative virtual environments*, Cape Town: Collaborative Visual Computing Laboratory (2000).

⁵⁰ Terry, D. J., Neilsen, M., and Perchard, L. "Effects of work stress on psychological well-being and job satisfaction: The stress-buffering role of social support." *Australian Journal of Psychology*, 45 (1993): 168-175.

⁵¹ Wainfan, L and Davis, P. *Challenges in virtual collaboration*, Washington, D.C., RAND (2004); Lombard, M. and Ditton, T. "At the heart of it all: The concept of presence." *Journal of Computer Mediated Communication*, 3, (1997) <http://www.ascusc.org/jcmc/vol3/issue2/lombard.html>; Office for Criminal Justice Reform. *Convicting rapists and protecting victims – Justice for victims of rape*, London: Home Office (2006).

⁵² Heeter, C. "Being there: The subjective experience of presence." *Presence: Teleoperators and Virtual Environments*, 1 (1992): 262-271.

⁵³ Casaneuva, J. and Blake, E. *Presence and co-presence in collaborative virtual environments*, Cape Town: Collaborative Visual Computing Laboratory (2000).

⁵⁴ Friedman, R. "The confrontation clause re-rooted and transformed, *Cato Supreme Court Review*, 2003-4 (2004): 439-468.

PREVIOUS RESEARCH

Visual cues do not just convey information about individual speakers; they may also regulate interactions by indicating relative status and maintaining appropriate distances between parties⁵⁵. Video-based interactions tend to convey different distance cues than face-to-face communications. Being 'remote' may create the necessary space between hostile parties⁵⁶, but it may also encourage inappropriate intimacy⁵⁷, leading to 'disinhibited behavior'⁵⁸. In a face-to-face interaction, people at a 'social' distance (about a metre) tend to converse casually, whereas if they are separated by a 'public' distance (over six metres), they may speak in a more formal manner. In video communications, some studies suggest people speak in a more formal way than equivalent face-to-face interactions, with fewer interruptions and longer statements; other studies suggest more casual exchanges⁶⁰.

⁵⁵ Hall, E. T. *The Silent Language*. NY: Doubleday (1959).

⁵⁶ Viriolo, P. *The overexposed city, in Zone 1-2*, trans. A. Hustvedt, New York, Urzone (1984).

⁵⁷ Kuzan, A. *Architecture and technology for an international virtual lecture theatre*, Zurich: University of Zurich, Master thesis in Information Technology (2003).

⁵⁸ Day, S. and Schneider, P. "Psychotherapy using distance technology: A comparison of face-to-face, video and audio treatment." *Journal of Counseling Psychology*, 49 (2002): 499-503.

Architects have a choice of spatial codes to apply to spaces used for remote participants⁶¹, including in this case the majesty of a Gothic courtroom, the functionality of a modernist one, and the safety of a 'nest'⁶².

⁶⁰ O'Connell, B., Whittaker, S and Wibur, S. "Conversations over Video Conferences: An Evaluation of the Spoken Aspects of Video-Mediated Communication. *Human-Computer Interaction* 8 (1993): 389-428; Doherty-Sneddon, G., Anderson, A. H., O'Malley, C., Langton, S., Garrod, S. and Bruce, V. "Face-to-face and video mediated communication: a comparison of dialogue structure and task performance." *Journal of Experimental Psychology: Applied* 3 (1997): 105-125.

⁶¹ Lefebvre, H. *The Production of Space*, Oxford, Blackwell (1991).

⁶² Bachelard, G. *The Poetics of Space*, Boston, Beacon Press (1994).

A 'nest' or sanctuary may be more acceptable to some court users, including indigenous people, who frequently find traditional courts, organised around legal hierarchies, alienating and confusing. Through careful design, users can be encouraged to experience the space gradually, moving through transitional areas⁶³, creating a sense of withdrawal from the world⁶⁴, as they prepare for the serious business of justice, and creating a sense of privacy and safety⁶⁵.

The extent to which users can modify their environment is relevant in many settings⁶⁶; for remote access participants the more features of the environment they can adjust the more involved they feel⁶⁷. In video-mediated communication, this includes the image of self presented to the remote viewer⁶⁸, the choice of remote views and the distance of the participant from the screen⁶⁹. Views of nature⁷⁰, and daylight⁷¹ are likely to increase concentration and reduce stress, as do acoustic comfort, air quality, and thermal balance⁷².

⁶³ Erzen, J. "The aesthetics of space in Ottoman architecture," in ed. A. Petruccioli and K. Pirani, *Understanding Islamic Architecture*, London, RoutledgeCurzon, 57-64 (2002).

⁶⁴ Garapon, *Bien juger*. Paris, Odile Jacob (1997).

⁶⁵ Ulrich R. "Effects of exposure to nature and abstract pictures on patients recovering from open heart surgery." *Journal of Social Psychophysiological Research* 30 (1993): 204-21.

⁶⁶ Brager, G, Paliaga, G. and de Dear, R. "Operable Windows, personal control and occupant comfort," *Transaction of the American Society of Heating, Refrigeration and Air-conditioning Engineers Inc*, 110, part 2 (2004).

⁶⁷ Steuer, Jonathan. "Defining Virtual Reality: Dimensions Determining Presence," *Journal of Communication* 42.4 (1992): 73-93.

⁶⁸ Kuzan, A. *Architecture and technology for an international virtual lecture theatre*, Zurich: University of Zurich, Master thesis in Information Technology (2003).

⁶⁹ Mouzourakis, P. "Remote interpreting: a technical perspective on recent experiments." *Interpreting* 8 (2006): 45-66.

⁷⁰ Ulrich, R., Simons, R., Losito, B., Fiorito, E., Miles, M. and Zelason, M. "Stress recovery during exposure to natural and urban environments," *Journal of Environmental Psychology*, 11 (1991): 201-230.

⁷¹ Abdou, O. "Effects of luminous environment on work productivity in building spaces," *Journal of Architectural Engineering*, 3 (1997): 124-132.

⁷² Reffat, R. and Harkness, E. "Environmental comfort criteria: Weighting and integration," *Journal of Performance of Constructed Facilities*, (2001): 104-108.

PREVIOUS RESEARCH

There have been a few empirical studies about the impact of the earlier generation of video technology on court processes. An Australian mock jury study looking at testimony by adult sexual assault complainants found that witnesses who testified by video link or recorded video were not considered less credible than those who testified live; nor were there any significant differences in verdict between the conditions⁷³.

However an American mock jury study about the credibility of child witnesses found that before deliberation, jurors were more likely to find the accused guilty if the witness was present in the courtroom (52%) than if he/she appeared via video link (43%)⁷⁴. The witness was seen to be more accurate, attractive, intelligent and honest in the court condition than the video condition and less likely to think that the child had made up a story.

There was no difference in level of empathy. After deliberation, however, the authors find that there was no difference between the two conditions. The authors concluded that juries are just as capable as detecting truthful statements by children if the child appears physically in court or via video link. The current project collected data only on what were effectively pre-deliberation verdicts (there was no deliberation), so if there is any disadvantage presented by the technology it would likely be evident in these verdicts. The research design used here, in other words, is one that is most likely to pick up potential disadvantages resulting from the technology – even if these problems would partly disappear with deliberation.

⁷³ Taylor, N. and Joudo, J. *The impact of pre-recorded video and closed circuit television testimony by adult sexual assault complainants on jury decision-making: an experimental study.* (2005) Canberra, Australian Institute of Criminology.

⁷⁴ Orcutt, Holly K., et al. "Detecting deception in children's testimony: Factfinders' abilities to reach the truth in open court and closed-circuit trials." *Law and Human Behavior* 25.4 (2001): 339.

While court and tribunal processes nowadays increasingly include remote participants by video link, these participants, such as the defendant or witness, may actually be 'remote' in several senses. They may be confined to a windowless room staring at a screen that offers restricted views of the hearing they are joining; they typically miss out on many of the verbal and non-verbal cues that facilitate mutual understanding; and they lose many of the messages provided by physically being in the hearing room, including its rituals and social organization. Their participation is limited and they may not feel they are really involved in proceedings.

By contrast, in the Distributed Courtroom, all the participants are thought of as being *present in the same virtual three-dimensional space*. Each participant has rich visual and acoustic stimuli within this virtual environment. Moreover, each participant joins the hearing from physical locations in courtrooms or court-like spaces. They feel present in both their physical setting and the virtual environment.

In the ideal Distributed Courtroom, screens are placed in appropriate positions that replicate the classic courtroom setup. Participants are represented 'true to life', there is directional sound, eye contact is clearly represented and there are appropriate spaces for dispersed publics.

There are a range of different sites that may be linked to a courtroom by video (Figure 2).

MAPPING THE DISTRIBUTED COURTROOM

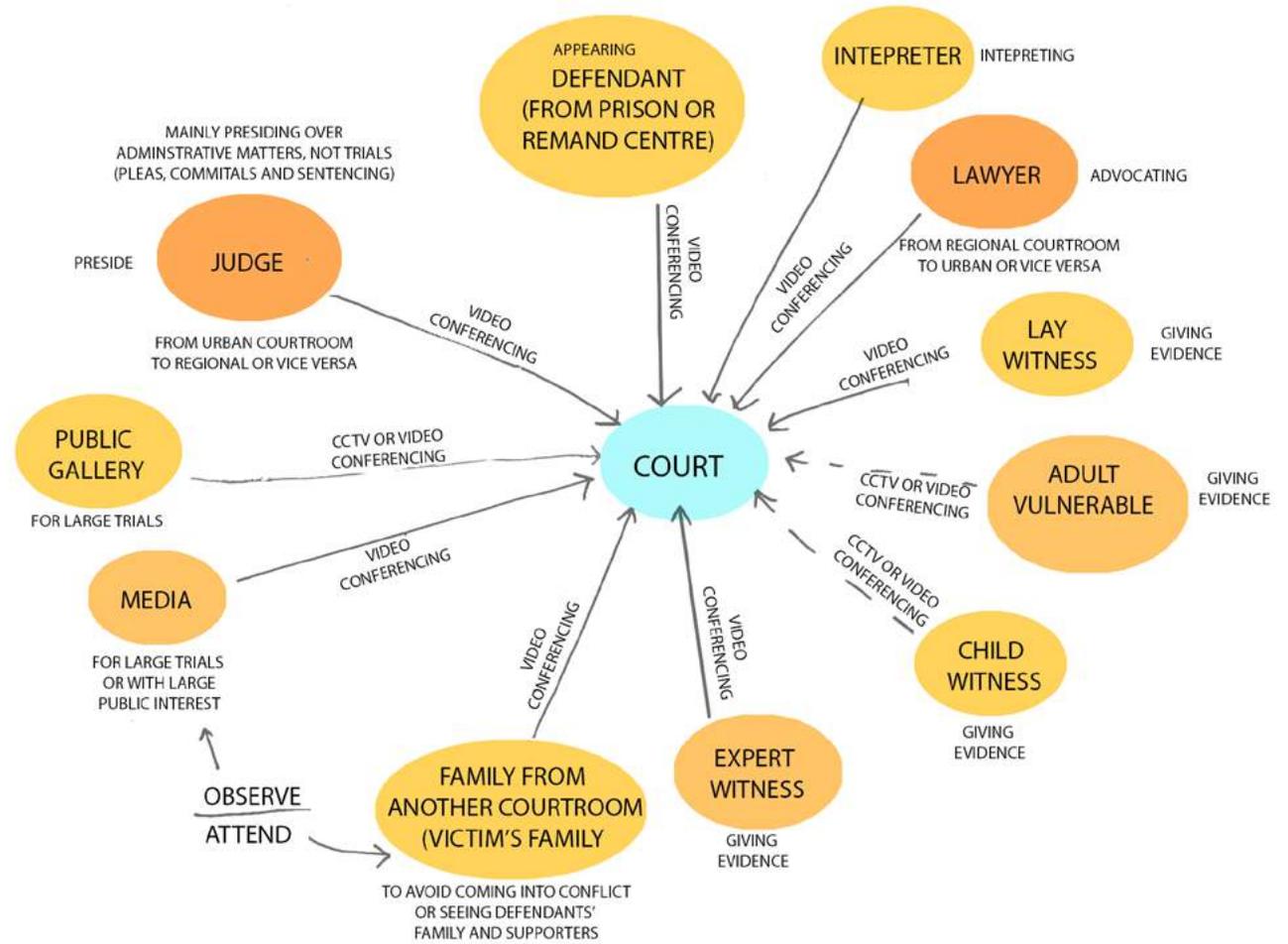


FIGURE 2
Remote court participation diagram.
Diagram: Emma Rowden

This diagram in Figure 2 from the *Gateways to Justice* project⁷⁵ makes a distinction between users who may be linked to the courtroom by a direct (CCTV) link from elsewhere in the court precinct, and those who take part thanks to a videoconferencing link. It lists ten different types of participants who may join a live hearing in this way. These include:

- family members or representatives of the media who take part only as observers and so require a one-way link;
- child witnesses or vulnerable adult witnesses who require a view of the person asking them questions – prosecutor or defence lawyer – and a small image of the judge, but not a general view of the courtroom;
- expert witnesses who need a view of the questioner and the judge, plus a general view of the courtroom including the jury (in a jury trial) to check for comprehension;
- judges who need to see all of the other participants, as well as the public in order to manage their court;
- interpreters (for witnesses) who need to be heard, but not necessarily seen but should be able to see the faces of the witness and the questioner, plus a small image of the judge; and
- interpreters (for the accused) who need to be heard but not necessarily seen, but should be able to see the witness, questioner and judge.

The complexity of this list emphasises the variety of sightlines that must be taken into account for the different needs. Some need comprehensive views of other court participants while others need only to see the speakers. Some need to be seen by the other participants; others do not. Protected witnesses may have their faces pixilated or blurred.

What this list in effect assumes is that only one participant (or one group, such as witness and interpreter, or defendant and lawyer) takes part in the process from a remote location. The Distributed Courtroom model relaxes this assumption and opens up the possibility that participants may take part from three or more locations. In the study reported below only one possible configuration of the distributed court was examined in detail. Figure 2 emphasises that a range of other possible sites could be involved.

⁷⁵ *Gateways to Justice: Report : Design and Operational Guidelines for remote participation in court proceedings*, <http://courtoffthefuture.org/all-publications/>

MAPPING THE DISTRIBUTED COURTROOM

However, even the diagram in Figure 2 is a simplification. The Justice Conferencing Network (as represented in Figure 3) does not necessarily need to be seen as centred in a courtroom. A variety of other meeting rooms could also be involved. Indeed the very concept of a 'centred' hearing could be called into question as a variety of spaces are joined together to constitute a judicial event.

Figure 3 shows just some of the diversity of visual and audio pathways that a Distributed Courtroom design may enable. Expert witnesses in two different sites may need to communicate with each other; co-defendants may be in different prisons, judges, psychiatrists and lawyers may communicate from their own offices. Two courts may be connected, and some witnesses may take part from multifunction rooms in courts, police stations or even private firms, like in the example given here, a one-stop print shop.

Some hearings may not require a physical courtroom at all: the 'virtual' court could in principle bring together the judge (sitting in chambers) with two civil parties (both in their lawyers' offices), and witnesses (in a remote witness facility).

The network becomes even more complex once display technologies are added to share evidence in visual or textual form between the sites. This is discussed elsewhere in this report, where the use of a separate communications network using mobile technologies is canvassed.

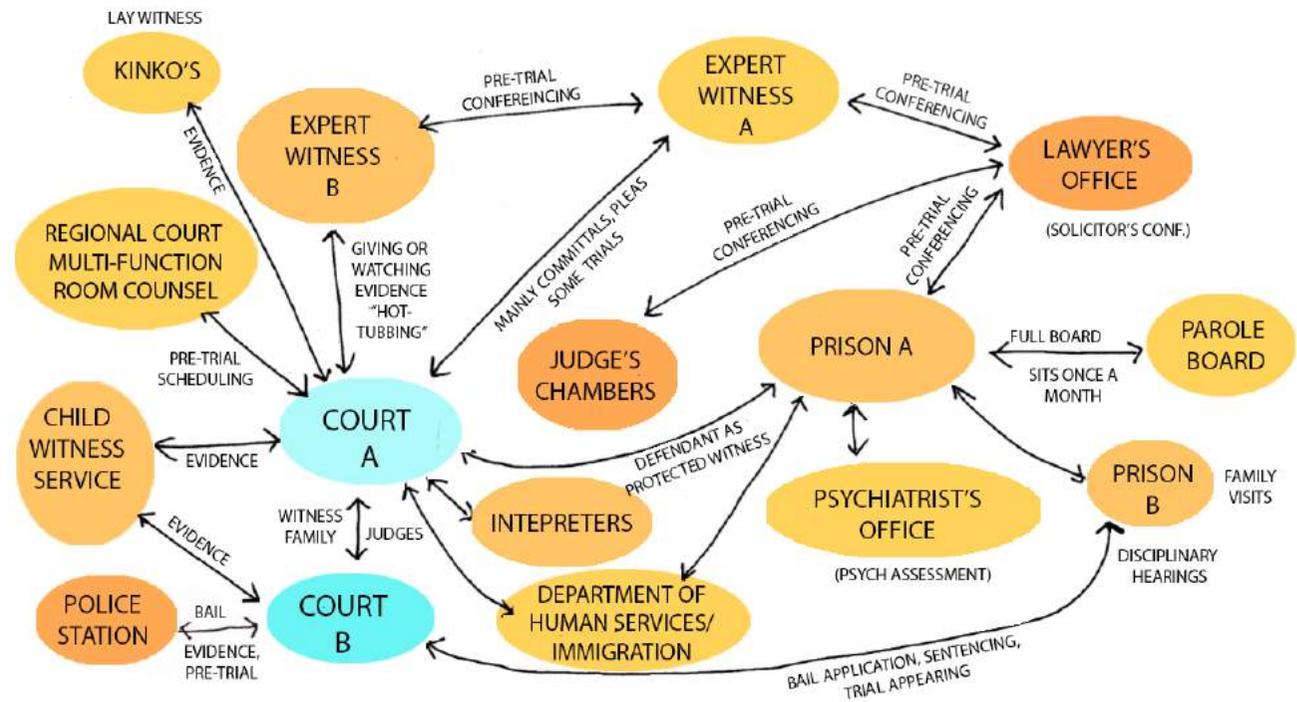


FIGURE 3
Justice Conferencing Network.
Diagram: Emma Rowden

The diagram in Figure 3 indicates the possible sites where participants might be located. For a videoconferencing network there may also be a number of hubs that regulate the flow of data traffic. Courts, prisons and police may have their own state or regional hubs, with different protocols for establishing connection. Private legal firms may access international video link networks, sometimes based in Singapore or the US. While these computer networks are not examined in this report, the architecture of these networks will need to be taken into account in any mass rollout of Distributed Courtroom technologies.

The type of legal process that is appropriate, for limited or extensive use of remote participation, is one of the key policy questions that this report opens up. Just because a particular configuration is technically possible does not mean it serves the interests of justice, and just because it is legally desirable does not always mean it is technically feasible or economically prudent.

BACKGROUND

CHALLENGES IN DEVELOPING DISTRIBUTED COURTS

Using distributed court technologies may save money and improve access. It may also, however, represent a threat to long-established legal traditions, privilege efficiency at the expense of due process, and deprive litigants of their 'day in court'. New technologies are frequently rolled out with very little evidence about their impacts on people or processes.

The ways in which participants interact may change: witnesses may appear less credible on screens, familiar cues from gesture and demeanour may be lost and trust in the authority of the court may be eroded, compromising perceived fairness. Being 'remote' may create the necessary space between hostile parties; or conversely encourage 'disinhibited behaviour'. Creating a dignified and respectful virtual environment is particularly challenging in the already tension-filled context of a family dispute.

There are significant architectural and technological challenges in designing virtual court environments, although some inspiration can be taken from gaming technology and laboratory research about human-machine interaction. State-of-the-art camera systems can produce three-dimensional video communications between sites, with eye-tracking algorithms able to simulate eye contact. However, this technology is not trivial and currently imposes significant physical constraints on the room design – it is therefore not generally applicable to the courts in its current form.

Instead, this demonstration utilises the current courtroom technology standards (albeit in a sophisticated system configuration) to simulate the virtual courtroom, enabling exploration of both the suitability and shortcomings of this technology for courtroom use.

BRISBANE PILOT DEMONSTRATION



FIGURE 4
Configuration of main courtroom in Brisbane Supreme and District Courts, view from defence table towards judge and prosecutor (on screens).
Photo: Paul Katsieris

A pilot demonstration of the Distributed Courtroom was first performed in Brisbane at the Australasian Institute of Judicial Administration conference in May 2015, *Justice without barriers: technology for greater access to justice*. The pilot study provided valuable lessons in what works and what could be improved. Judges and other AIJA members acted the parts of judge, prosecutor, defence lawyer, defendant and witness. Setting up each of the courtrooms to allow audience members to be present – necessary to accommodate an audience of over 100 – added extra complexity. The demonstration used three state-of-the-art courtrooms, with the defence lawyer and accused and most of the audience in the largest room, the prosecutor, witness and most of the rest of the audience in the second room and the judge, associate and a few audience members in the third room.

BRISBANE PILOT DEMONSTRATION



FIGURE 5
Configuration of main courtroom in Brisbane Supreme and District Courts, view from audience towards judge (on the middle screen) and prosecutor (on screen to left-hand side).
Photo: Paul Katsieris



FIGURE 6
Configuration of second courtroom in Brisbane Supreme and District Courts, view from behind prosecutor towards judge (on the middle screen) and defence table (on the screen in the far right of the room.) Photo: Paul Katsieris



FIGURE 7
Configuration of third courtroom in Brisbane Supreme and District Courts, view from audience towards judge (physically present in the room), prosecutor (on the screen on the left-hand side of the room) and defence (on the screen on the right-hand side). Photo: Paul Katsieris

Even in a very modern courthouse, internal cabling did not support the complex network of video and audio leads required. Temporary cables were required to provide separate video and audio feeds between the three sets of participants. The relatively large courtrooms provided a realistic and dramatic setting, but the wooden floors and live acoustics required even the live participants to use microphones (something that was not necessary in the smaller North Sydney courtroom). This meant that in each courtroom it was necessary to place loudspeakers in three locations, in order to create the immersive experience of directional sound. This did not entirely work, with audience members commenting that they sometimes found it difficult to associate the speaker and the sound. Further, single loudspeakers were barely adequate for full courtrooms that were designed with sophisticated systems of (non-directional) acoustic enhancement.

Each display screen was a composite of four smaller screens stitched together, with the overall screen size of 110" diagonal. This resulted in lines where the four screens joined, sometimes bisecting faces, causing some distraction. While images of participants on screens were carefully calibrated to be life-size, the illusion was created that remote participants were larger than this, partly because the background was brighter than for the participants who were physically present.

The sight lines between remote parties were somewhat restricted – the judge was not able to see the faces of the two parties on the large screens, so was provided with two small screens set immediately behind the large screen facing towards him. The audience in the main courtroom saw the image of the judge looking not towards them but to their left.

OVERVIEW OF THE EXPERIMENTAL DESIGN

In order to measure the impact of the Distributed Courtroom and test possible juror prejudice against the defendant, a field experiment was designed. Conducted in the North Sydney Court during November 2015, the set up consisted of one courtroom and two smaller rooms as the “remote” locations.

Based on the Brisbane demonstration, a number of changes were made to the design for the North Sydney study in order to improve the three factors previously outlined: the appearance of the image, the quality of the audio and participant eye contact. This affected the quantity, size and placement of cameras, screens and microphones in North Sydney. The audience was limited to one room with the jury sitting in the public gallery at the back of the courtroom. The other two rooms were set up effectively as television studios.

To measure the difference between being physically co-located and virtually co-located, 445 members of the public were recruited to serve as 'jurors'. The trial they observed involved two criminal matters associated with dog fighting, in a fictitious Australian jurisdiction, using a legal criminal code that was written for the purpose. Giving the research participants the role of 'juror' was something they knew and understood. It gave them a status in the proceedings, and brought with it an expectation that they would be given the chance to vote on the outcome. (It would have been less plausible to call them 'members of the audience' while getting them to make decisions). Of course, just because this dramatic device was useful for staging purposes, it does not suggest that jury trials for criminal matters would be the most likely type of matter to use the Distributed Court approach.

Professional actors performed the trial in four different conditions. These conditions were repeated multiple times in a randomised order over four days to a new group of jurors⁷⁶ each time. After each performance, jurors recorded their individual verdict and completed a survey.

⁷⁶ Jury members were recruited via a market research company. Demographics reflected those of a real jury pool. Participants completed a survey prior to attending the performance, which assessed their familiarity with various forms of technology, their beliefs about justice, and their preferred learning style. The number of jurors in each condition was 108,110,110 and 116 in conditions 1 to 4 respectively.

CONDITION 1

All parties (i.e. judge, defence lawyer, defendant, prosecutor and witness) are physically present in the courtroom, positioned conventionally. The defendant is located in the dock. The jury watches on from the public gallery at the back of the courtroom.



FIGURE 8
Accused in dock sitting behind his lawyer for Condition 1, North Sydney courthouse. Photo: Filigree Films

CONDITION 2

All parties are again physically present in the courtroom but this time the defendant sits at the bar table with his lawyer as they would in the USA, Germany and Scandinavia. The jury sits in the public gallery and the same case is presented.



FIGURE 9
Accused at bar table sitting alongside his lawyer for Condition 2. Photo: Filigree Films

OVERVIEW OF THE EXPERIMENTAL DESIGN

CONDITION 3

This is the current standard remote condition utilised by courts around Australia where all parties are again physically present in the courtroom except the defendant who participates remotely via a screen from another room. This screen is presented to the side of the courtroom. Given the design and size of the courtroom, the jury sits in the public gallery. The prosecution and defence tables are angled to allow the jurors to see their faces. In this condition, when the defence lawyer and prosecution question the remote defendant or address the court, they move to the lectern positioned in the middle of the room in front of the judge. See Figure 11 for the courtroom layout.



FIGURE 10
Defence barrister addressing jury in public gallery Condition 3, with judge behind. Photo: Filigree Films

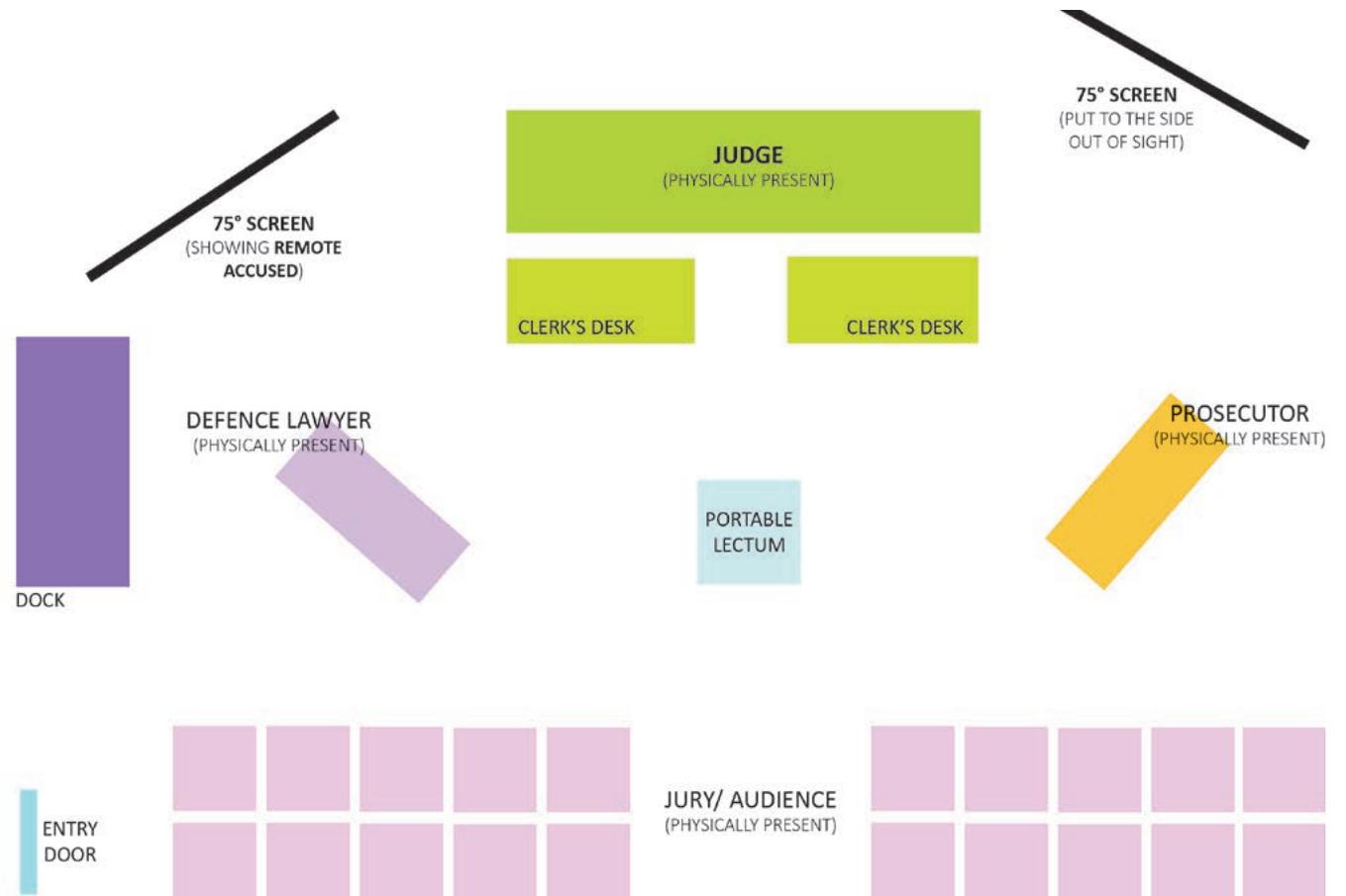


FIGURE 11
Courtroom Layout for Condition 3
Diagram: PTW Architects



FIGURE 12A
Defence barrister addressing jury in public gallery in Condition 3, with judge and witness physically present in the background, and the accused appearing remotely via the screen on the left-hand side.
Water colour illustration: Michael Blazewicz



FIGURE 12B
Defendant seated alone in the remote room (Condition 3).
Watercolour illustration: Michael Blazewicz

OVERVIEW OF THE EXPERIMENTAL DESIGN

CONDITION 4

This is the Distributed Courtroom condition. Like all the other conditions, the judge is physically present in the courtroom and the jury watches from the public gallery at the back of the courtroom. This time, the defendant sits beside his lawyer in a second separate room and together they come in remotely on a screen. Similarly, the prosecutor, who is located in a separate (third) room, comes in remotely on another screen and is for part of the time accompanied by the expert witness. See Figure 14 for the courtroom layout.



FIGURE 13
Defendant sitting beside lawyer in distributed court condition, watching the prosecution witness testify, in Condition 4.
Photo: Filigree Films

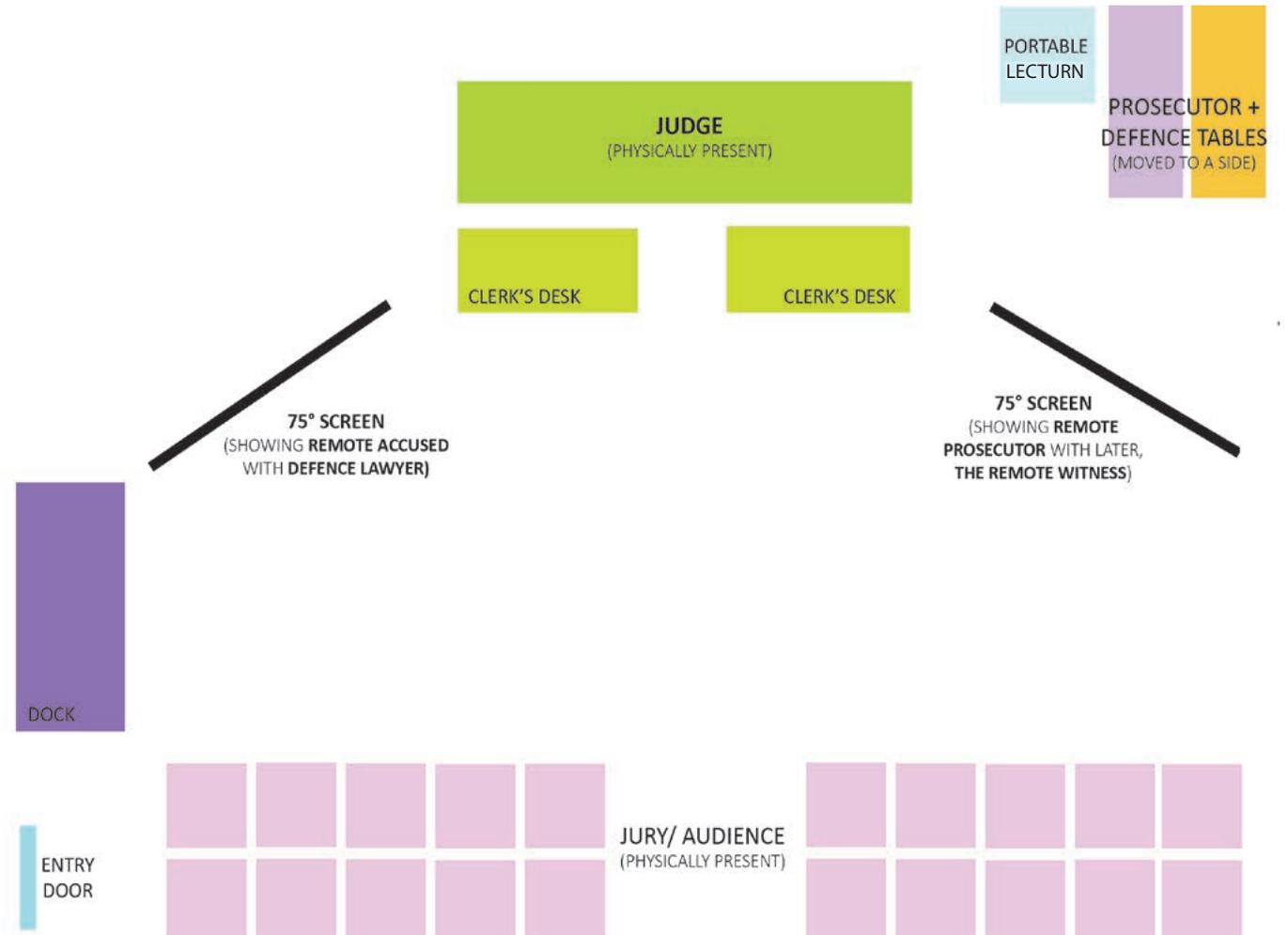


FIGURE 14
Courtroom Layout for Condition 4
Diagram: PTW Architects

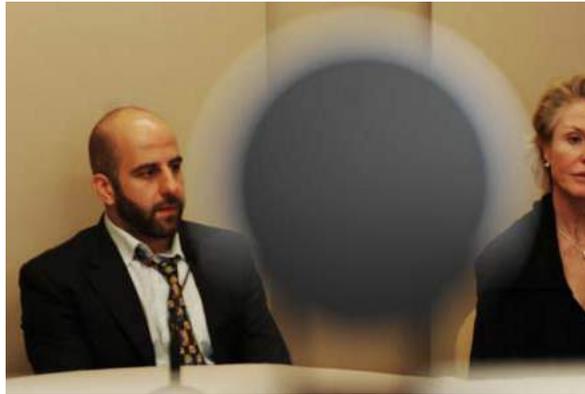


FIGURE 15
Defendant and defence lawyer sitting side by side in remote room, photograph taken from behind the camera pointing at them for Condition 4. Photo: Filigree Films



FIGURE 16A
Smaller screen located on the judge's bench showing the defendant and defence lawyer sitting side by side in Condition 4. Photo: Filigree Films



FIGURE 16B
Defendant appearing remotely (Condition 4)
Watercolour illustration: Michael Blazewicz

TECHNOLOGY

While no technology was required for Conditions 1 and 2, where all participants were present in the courtroom, it was integral to Conditions 3 and 4. The following strategies were used:

Appearance:

The remote participant(s) on the screen were to appear life size relative to the judge. The perspectival illusion created by the screen was that they were as distant from the audience as the judge, and so appeared to be larger when their image was in fact the same size as that of the judge. The images of the remote participants were therefore reduced in size so that they appeared equivalent to that of the judge. The luminosity (i.e. brightness) of the background framing on the screen was dimmed, again to make the remote participants no more visually prominent than the judge. The judge himself was made brighter by giving him a banker's lamp which reflected onto his face via a large white sheet of paper.



FIGURE 17
Judge's face made brighter by lamp. Photo: Filigree Films

Eye contact:

Cameras and screens were positioned so participants could simulate eye contact. This also enabled “gaze awareness” allowing other participants and the jury to see who is looking at and talking to whom. Some of the simulated eye contact however was an illusion. Because of the temporary nature of the installation, remote participants did not have a view of the jury and the limitations of the room meant that the screen displaying the judge (and associated camera) was not located in the place that allowed simulated eye contact. The professional actors looked at prepared spots on the wall to create the impression they were looking at the judge or the audience.

Audio:

To make the sound appear as natural as possible, loudspeakers were chosen with directional characteristics and customised both to the courtroom's acoustics and enhancing speech intelligibility. They were located close to the relevant screen upon which that person appears. Microphones were placed close to participants in order to reduce the amount of “room acoustic” brought from the far-end room to the courtroom. Tonal balance and volume of remote participants were adjusted to ensure they were equivalent to those who are physically present in the courtroom. The judge's microphone was used only to transmit sound to the remote rooms; as he was a professional actor his voice was strong enough not to need amplification within the courtroom.



FIGURE 18
Remote witness speaking into a microphone.
Photo: Filigree Films

TECHNOLOGY

The following provides a list of the technical equipment that was used in this demonstration of the Distributed Courtroom:

In courtroom

1. 2 x video conferencing systems (this is required to provide the correct number of views in the courtroom and at each of the two remote locations. Separate codecs allow for each remote participant to be amplified separately in the courtroom).
2. 2 x cameras (Cisco PrecisionHD Cameras).
3. 2 x 75" screens oriented in landscape mode.
4. 2 x 24" screens facing the judge (co-located with each 75" display) and replicating the same image presented to the jury on the 75" screens. This is to provide focal points for the judge for communicating with remote participants.
5. 4 x tonally accurate small studio monitoring loud speakers in the courtroom (i.e. 1 loudspeaker next to each screen to localise sound back to the video image).
6. directional gooseneck style microphones for the participant.
7. sound absorbing acoustic panels on the back wall of the room.



FIGURE 19A
Videoconferencing control system - two codecs required for Distributed Court condition. Photo: Filigree Films



FIGURE 19B
Screen with pixellation
Photo: Diane Jones, ICTY



FIGURE 20
Court proceedings shown in real-time on screen
Photo: Diane Jones, ICTY

In remote room

1. 4 x cameras (Cisco PrecisionHD Cameras) i.e. 2 in each room
2. 4 x screens (i.e. 2 in each room)
3. directional, gooseneck style microphones for each of the participants (i.e. 2 in each), see Figure 18
4. 1 x audio digital signal processor
5. 6 x acoustic screens behind the participants (3 in each room) to provide some acoustic control and give a neutral background to viewers



FIGURE 21
Two screens and one camera in (third) remote room where prosecutor sat in Condition 4. Photo: Filigree Films



FIGURE 22
Three acoustic screens positioned behind defence table. Photo: Filigree Films

The 75" screen size was chosen because it is the current standard being introduced into NSW courts. However it proved to be the ideal size for this courtroom – any larger would have dominated the room unduly. The screens were set up in landscape mode, allowing two participants to sit alongside each other prosecutor and witness (when testifying), and defence lawyer and defendant (the whole performance).

In the Distributed Court Condition (i.e. number 4), all participants sat throughout the trial including when they spoke because this maintained the 'true-to-life' standard of visual equality between remote participants and the judge who was physically present (and also seated) in the courtroom.

Another compromise necessitated by the technical limitations was placing the prosecutor and witness at the same table, albeit at 90 degrees to each other to indicate a separation between them. This co-location was for the period when the witness was being questioned; otherwise the witness was off-camera. The defendant meanwhile remained at the defence table to be examined and cross-examined. There was no separate witness box.

STUDY FINDINGS

TABLE 1
Perceptions of environment for accused

Table 1 looks at mock jurors' or observers' perceptions of the defendant environment. When the defendant, Mr Thompson, was in the courtroom he moved to the witness box to give evidence; when in the remote room he remained where he was. The quality of his environment might provide cues to the jury about how to evaluate the guilt, credibility, or dangerousness of the accused without their being aware of it. While this study also asks jurors directly about these matters, the strength of an experimental approach is that it can identify differences resulting from an intervention of which the participants themselves are not aware.

A checklist was provided to the observers, including the following items: 'comfortable' ... 'welcoming', using a scale of 1 to 5, where '1' was 'Not at all' and '5' was 'Very much'. The average score was highest for whether the environment was seen as 'neutral' (3.3) and lowest for 'intimidating' (2.2). Overall the score was just above the midpoint of the scale (3.5).

The two conditions in which the accused sat alongside his lawyer (either in the courtroom or in the remote room) were compared with the other two conditions in which the accused was seated alone. Sitting alongside his lawyer made the environment seem significantly more comfortable, respectful and welcoming; it was also seen as significantly less intimidating and less isolated.

The two conditions in which the accused was in the courtroom were not significantly different from the two conditions in which he was seen on a screen, except for one measure – the defendant was seen as being in a less intimidating environment when he appeared on video. However, all this difference was concentrated in the single condition when the accused was in the dock. Indeed, the most intimidating and isolated condition was seen to be when the accused was in the dock; it was also seen as the least respectful and least welcoming environment.

Overall, appearing on video made little difference to participants' perceptions of the defendant's environment. What made a lot of difference, however, was whether he was seated alongside his lawyer.

Table 1

Perceptions of environment for accused

'When he wasn't giving testimony, the place where the accused, Mr Thompson, was sitting was...'

	<i>Comfortable</i>	<i>Neutral</i>	<i>Intimidating</i>	<i>Isolated</i>	<i>Respectful</i>	<i>Welcoming</i>	<i>Average of items</i>
Position of accused							
In courtroom							
Alone, in dock	2.6	3.1	2.6	3.8	2.8	1.9	3.0
Seated with lawyer	3.5	3.4	2.1	2.1	3.5	2.6	3.9
<i>Sub-total</i>	<i>3.0</i>	<i>3.3</i>	<i>2.4</i>	<i>3.0</i>	<i>3.2</i>	<i>2.2</i>	<i>3.4</i>
Appearing by video							
Alone	3.0	3.7	2.1	3.5	3.1	2.1	3.3
Seated with lawyer	3.3	3.2	2.1	2.2	3.3	2.6	3.8
<i>Sub-total</i>	<i>3.2</i>	<i>3.4</i>	<i>2.1</i>	<i>2.8</i>	<i>3.2</i>	<i>2.4</i>	<i>3.6</i>
Both settings							
Alone	2.8	3.4	2.4	3.6	2.9	2.0	3.8
Seated with lawyer	3.4	3.3	2.1	2.2	3.4	2.6	3.2
Total	3.1	3.3	2.2	2.9	3.2	2.3	3.5
Estimated differences due to							
Use of video	0.10	0.18	0.27 *	0.14	0.01	0.16	0.14
Presence of lawyer	0.69 ***	0.05	0.23 *	1.46 ***	0.43 ***	0.60 ***	0.65 ***
Distributed court v dock condition	0.69 ***	0.20	0.51 ***	1.61 ***	0.46 **	0.78 ***	0.80 ***
Distributed v rest	0.25 ***	-0.17	-0.18	-0.97 ***	0.12	0.45 ***	0.28 ***

Note: Respondents used a 7-point scale, ranging from 1=Not at all to 7=Very.

In calculating average the score for 'Isolated' and 'Intimidating' is subtracted from 7 to make it positive

'Neutral' is excluded from the calculation as it is by definition neither positive nor negative

*** Significant at .001 level, ** significant at .01 level, * significant at .05 level

STUDY FINDINGS

TABLE 2
Perceived response of the accused to environment

Table 2 provides the jurors' perspective of how the accused felt, or looked, using the categories 'stressed', 'isolated' and 'remote'. Predictably, the defendant was seen to be significantly more 'remote' when appearing on a screen than in person. This probably reflected the factual situation that he was technically remote, rather than a psychological assessment of his aloofness or distance.

Position of accused	<i>Accused seemed:</i>		
	Stressed	Remote	Isolated
In courtroom			
Alone, in dock	3.4	2.9	2.8
Seated with lawyer	3.6	2.8	2.5
<i>Sub-total</i>	3.5	2.9	2.7
Appearing by video			
Alone	3.3	3.1	3.2
Seated with lawyer	3.6	3.3	2.6
<i>Sub-total</i>	3.5	3.2	2.9
Both settings			
Alone	3.4	3.0	3.0
Seated with lawyer	3.6	3.1	2.6
Total	3.5	3.1	2.8
Estimated differences due to			
Use of video	-0.04	0.36 ***	0.19
Presence of lawyer	0.24 *	0.03	-0.45 ***
Distributed court v dock condition	0.20	0.38 *	-0.26

Note: Respondents used a 7-point scale, ranging from 1=Not at all to 7=Very.

*** Significant at .001 level, ** significant at .01 level, * significant at .05 level

As with the isolation measure for the accused's environment, Mr Thompson was seen as significantly less 'isolated' when he was beside his lawyer (2.6) than when he was sitting alone (3.0). Putting the two isolation measures together we may conclude that isolation was seen primarily as a social rather than technological issue. The average score for 'stress' was 3.5, just above the mid-point of the scale, a level not affected by whether the accused appeared on a screen or in person.

However, when the defendant sat beside his lawyer, he was seen to be significantly more stressed. It is possible that because the actors playing the accused and the lawyer were instructed, in the interests of consistency, not to chat, whisper or share knowing looks – features that might be present in a real trial – the accused seemed more stressed than might have been expected. However, little can be read about the expected levels of stress from video technology for normal court participants by looking at how observers react to professional performances.

A previous study, *Gateways to Justice*, showed that stress levels for people appearing remotely (in that case, the stress of witnesses) could be reduced by well-designed orientation and acknowledgement rituals. Again, the problem was primarily social, not technological.

gateways to justice: *design and operational guidelines for remote participation in court proceedings*

AUTHORS: Emma Rowden, Anne Wallace, David Tait, Mark Hanson and Diane Jones

A SYNTHESIS OF THE FINDINGS FROM THE AUSTRALIAN RESEARCH COUNCIL LINKAGE PROJECT
GATEWAYS TO JUSTICE: IMPROVING VIDEO-MEDIATED COMMUNICATIONS FOR JUSTICE PARTICIPANTS
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FIGURE 23
'Gateways To Justice' Report Cover
Credit: Emma Rowden, David Tait, Diane Jones, Anne Wallace, Mark Hanson

STUDY FINDINGS

TABLE 3
Verdict and strength of the prosecution case

Table 3 shows how jurors who were assigned to the different experimental conditions voted. The jurors reported here on the verdict they would give for the two charges (organising and then attending a dog fight). They also gave their assessment of the strength of the prosecution evidence.

The 'law' according to the script for the fictitious Australian jurisdiction defined a dog fight as any match in which a dog was 'pitted' against another dog for money or the entertainment of spectators, regardless of whether a dog was injured. Mr Thompson, the accused, admitted attending such an event, albeit one in which dogs were muzzled; he was therefore guilty of this charge (at least according to the scriptwriters). However, only 58 per cent found him guilty of attending a dog fight. The level of guilty verdicts was slightly higher for those who saw the accused sitting in the courtroom beside his lawyer (64 per cent) than for those who saw him by video (56 per cent). However, there were no significant differences between conditions.

Table 3
Verdict and strength of prosecution case

Position of accused	In relation to dog fights, Per cent guilty of		Weight of prosecution evidence
	Organising	Attending	
In courtroom			
Alone, in dock	31%	58%	5.5
Seated with lawyer	21%	64%	5.2
<i>Sub-total</i>	<i>26%</i>	<i>61%</i>	<i>5.3</i>
Appearing by video			
Alone	18%	56%	5.2
Seated with lawyer	21%	56%	4.9
<i>Sub-total</i>	<i>19%</i>	<i>56%</i>	<i>5.1</i>
Both settings			
Alone	25%	57%	5.4
Seated with lawyer	21%	60%	5.0
Total	23%	58%	5.2
Estimated differences due to			
Use of video	-7%	-5%	-0.26
Presence of lawyer	-4%	3%	-0.32 *
Distributed court v dock condition	-10%	-2%	-0.59 **
Dock vs rest	11% **	0%	0.44 **

Jurors were asked whether they found him 'guilty' or 'not guilty' of each offence

Jurors were asked how 'important' the 'overall weight of the prosecution case' was to their decision.

They used a 7-point scale, ranging from 1=Not at all important to 7=Very important.

*** Significant at .001 level, ** significant at .01 level, * significant at .05 level

The evidence about whether Mr Thompson was guilty of organising a dog fight was more ambiguous. He delivered small dogs that were (allegedly) used as bait for fighting dogs in so-called 'training fights', but these did not involve money or entertainment. So the link between the accused and the organisation of dog fights was somewhat tenuous. Nevertheless, 23 per cent of the jurors found him guilty. Those who saw him on video were slightly less likely to consider him guilty (19 per cent) than those who saw him in person (26 per cent). But the only condition that was significantly different from the others was the dock condition – 31 per cent of the jurors who saw the accused in the dock found him guilty, compared to 20 per cent of the rest.

The jurors were asked to assess how important various items of the prosecution case were to their decision on a scale of 1 ('not at all important') to 7 ('very important'). The final item was 'the overall weight of the prosecution case', for which the average score was 5.2. Sitting alongside one's lawyer (5.0) reduced significantly the perceived strength of the prosecution case compared to sitting alone (5.4). Appearing on a screen may have reduced the perceived strength of the prosecution evidence slightly (5.1 vs 5.3). When the accused sat in the dock, the prosecution case seemed the strongest (5.5); when he sat with his lawyer in the remote room – the distributed condition – the case against him looked weakest (4.9).

What the technology made possible was for the accused to sit beside his lawyer in the remote room. It was the combination of these two elements – proximity to lawyer and appearance on a screen – that delivered the most accurate verdicts (in terms of the facts built into the script). In other words, the distributed court condition was the one that best protected the presumption of innocence.

STUDY FINDINGS

TABLE 4
Measures of culpability

Table 4 uses an alternative set of measures of culpability. Jurors were asked how 'likely' (on a 1 to 7 scale) it was that Mr Thompson attended dog fights or took part in organising them. As expected, the average score for 'attending' a dog fight (5.7) was somewhat higher than 'organising' one (4.0).

There was no significant variation in this score according to technology or proximity to one's lawyer. However, the combination of these two features did make a difference – jurors who saw the accused in the remote room seated alongside his lawyer did consider him significantly less likely to have attended dog fights. So, not only did the evidence look weakest when the accused was in the distributed condition (Table 3), jurors considered him less 'likely' to have attended dog fights than jurors who were assigned to other conditions.

Table 4
Measures of culpability

Position of accused	<i>Items measuring accused's culpability</i>	
	<i>Likely attended dog fights</i>	<i>Likely helped organise fights</i>
In courtroom		
Alone, in dock	5.6	4.2
Seated with lawyer	5.8	4.0
<i>Sub-total</i>	<i>5.7</i>	<i>4.1</i>
Appearing by video		
Alone	5.9	4.1
Seated with lawyer	5.4	3.8
<i>Sub-total</i>	<i>5.6</i>	<i>3.9</i>
Both settings		
Alone	5.7	4.1
Seated with lawyer	5.6	3.9
Total	5.7	4.0
Estimated differences due to		
Use of video Presence of lawyer	-0.08	-0.17
Distributed court v dock condition	-0.16	-0.27
Distributed court v rest	-0.22	-0.44
	-0.40 **	-0.31

Note: Respondents used a 7-point scale, ranging from 1=Not at all to 7=Very.

*** Significant at .001 level, ** significant at .01 level, * significant at .05 level

STUDY FINDINGS

TABLE 5
Perceptions of the accused

Table 5 shows the adjectives jurors associated with the accused. These may provide a clue about the first impressions the accused makes on the jurors, which could then potentially influence the way they interpret the evidence. Jurors were asked to place the accused on a 1 to 7 spectrum from 'dishonest' to 'honest', 'unconvincing' to 'convincing', 'not likeable' to 'likeable', 'unreliable' to 'trustworthy', 'violent' to 'peaceful', and 'dangerous' to 'harmless'.

If the defendant sat with his lawyer he was seen as significantly more honest, although there was no significant variation between conditions in whether he was seen as convincing or trustworthy. If he appeared in person in the courtroom he was seen as significantly more likeable than if he appeared on a screen. But he was not seen as more dangerous or violent in one condition compared to any other.

If the person on a screen is seen as less likeable – in this case a defendant, but the same could potentially apply to witnesses – it is possible that jurors may not be able to empathise as well with them. However, the likeability is a reported reaction. What is more directly relevant to jury outcomes is whether the person is considered to be guilty. In Table 3 we saw that when the accused was on a screen alongside his lawyer his chances of acquittal were better, and the evidence against him seemed weaker, while from Table 4 this location rendered him less 'likely' to have committed the crime. So perhaps, from a defendant's point of view, being seen as less likeable may be a small price to pay for appearing less guilty.

Table 5
Perceptions of the accused

'How would you rate Mr Thompson, the accused, on the following dimensions? ...'

Position of accused	<i>Honest</i>	<i>Convincing</i>	<i>Likeable</i>	<i>Trustworthy</i>	<i>Peaceful</i>	<i>Harmless</i>	<i>Average of items</i>
In courtroom							
Alone, in dock	3.1	3.0	3.1	3.0	4.1	4.1	3.4
Seated with lawyer	3.5	3.1	3.1	3.1	4.0	3.8	3.4
<i>Sub-total</i>	<i>3.3</i>	<i>3.3</i>	<i>3.1</i>	<i>3.0</i>	<i>4.0</i>	<i>4.0</i>	<i>3.4</i>
Appearing by video							
Alone	3.2	2.9	2.8	3.0	4.2	4.1	3.4
Seated with lawyer	3.4	3.1	2.7	3.0	4.1	4.1	3.4
<i>Sub-total</i>	<i>3.3</i>	<i>3.4</i>	<i>2.7</i>	<i>3.0</i>	<i>4.2</i>	<i>4.1</i>	<i>3.4</i>
Both settings							
Alone	3.2	3.0	3.0	3.0	4.2	4.1	3.4
Seated with lawyer	3.5	3.1	2.9	3.0	4.0	3.9	3.4
Total	3.3	3.0	3.0	3.0	4.1	4.0	3.4
Estimated differences due to							
Use of video	0.04	0.0	0.37 **	0.02	0.12	0.15	-0.01
Presence of lawyer	0.29 *	0.14	0.01	0.06	0.15	0.21	0.01

Note: Respondents used a 7-point scale, ranging from 1=Dishonest etc, 7=Honest etc.

*** Significant at .001 level, ** significant at .01 level, * significant at .05 level

STUDY FINDINGS

TABLE 6
Stereotypes of the accused

Table 6 examines how the accused might be stereotyped as 'like a typical criminal' or 'similar to other criminals'. Being placed in the dock in the courtroom makes the accused stand out from other criminals; in this location he is significantly less 'typical' of the criminal classes generally, and less 'similar' to other criminals. This could be considered somewhat surprising given that the jurors who saw Mr Thompson in the dock were also more likely to consider that he was in fact a criminal. Perhaps they thought he was an unusual criminal because of his (alleged) unusual occupation of breeding tiny dogs.

Table 6
Stereotypes of the accused

	' Mr Thompson is..... ..'	
Position of accused	Like a typical criminal	Similar to other criminals
In courtroom		
Alone, in dock	4.0	3.4
Seated with lawyer	4.2	3.8
<i>Sub-total</i>	<i>4.1</i>	<i>3.6</i>
Appearing by video		
Alone	4.4	3.9
Seated with lawyer	4.3	3.9
<i>Sub-total</i>	<i>4.4</i>	<i>3.9</i>
Both settings		
Alone	4.2	3.7
Seated with lawyer	4.4	3.8
Total	4.2	3.8
Estimated differences due to		
Use of video	0.26	0.27
Presence of lawyer	0.10	0.17
Dock vs rest	0.34 *	0.46 **

Note: Respondents used a 7-point scale, ranging from 1=Not at all to 7=Very
 *** Significant at .001 level, ** significant at .01 level, * significant at .05 level

STUDY FINDINGS

TABLE 7
Perceptions of prosecutor

Table 7 turns to the perception of the prosecutor. Jurors were asked to rate the prosecutor in terms of a range of descriptors using a scale from 1 to 7. In the distributed condition the prosecutor appeared to the jurors on a screen, as did the accused, defence lawyer and prosecution witness. When the prosecutor appeared on the screen she appeared to the jurors significantly less aggressive, less well-prepared, less believable, less credible, weaker and less convincing than in the other conditions. This is likely to be related to the observation made for Table 2 that the prosecution case seemed weakest in the distributed condition as well.

Whether the accused was in the dock, or beside his lawyer in court, or alone in the remote room seemed to make little difference – the average score for each of these conditions was 5.0 or 5.1. This compared to the distributed court condition in which the prosecutor's average score was 4.6. So whereas being in the distributed condition seemed to bring only advantages to the accused, it seems to have made the prosecutor appear – in the eyes of the jurors – less effective.

Table 7
 Perception of prosecutor
 'The prosecutor was...'

Position of accused	Aggressive	Well- prepared	Believable	Credible	Weak	Convincing	Average of items
In courtroom							
Alone	3.8	5.6	5.7	5.7	2.3	5.5	5.1
Seated with lawyer	3.7	5.6	5.7	5.6	2.4	5.3	5.1
<i>Sub-total</i>	3.6	5.6	5.7	5.6	2.3	5.3	5.1
Appearing by video							
Alone	3.4	5.6	5.7	5.6	2.2	5.2	5.0
Seated with lawyer	3.1	5.1	5.2	5.3	2.9	4.8	4.6
<i>Sub-total</i>	3.4	5.3	5.5	5.4	2.6	5.1	4.8
Both settings							
Alone	3.7	5.6	5.7	5.6	2.3	5.4	5.1
Seated with lawyer	3.2	5.3	5.5	5.5	2.6	5.0	4.8
Total	3.5	5.5	5.6	5.5	2.5	5.2	5.0
Estimated differences due to							
Use of video	-0.22	-0.27	-0.24	-0.20	0.39 **	-0.25	-0.28
Presence of lawyer	-0.49 ***	-0.27	-0.24	-0.13	0.22 *	-0.37 *	-0.23
Distributed court v dock condition	0.70 *	0.54	0.47	0.33	-0.60	0.62 *	0.50
Prosecutor remote (distributed condition)	0.54 **	0.53 ***	0.45 **	0.29 *	-0.58 ***	0.46 **	0.47

Note: Respondents used a 7-point scale, ranging from 1=Not at all to 5=Very.

*** Significant at .001 level, ** significant at .01 level, * significant at .05 level

In calculating average the score for 'Weak' is subtracted from 7 to make it positive

STUDY FINDINGS

TABLE 8
Perception of defence lawyer

Table 8 looks at how the defence lawyer was perceived by the jurors. The same set of descriptors was used as for the prosecutor. Overall the average score for the defence lawyer was 4.1, compared to 5.0 for the prosecutor. Given that 58 per cent of the jurors had agreed with the prosecution case that the accused was guilty of attending dog fights, it was expected that the prosecutor would be seen on balance as more credible than the defence lawyer. The lawyer herself was seen as more believable and credible if the accused appeared on a screen.

In one of these conditions, the distributed condition, the lawyer was also on the screen (from the viewpoint of jurors) seated beside her client. Indeed, when the lawyer appeared on the screen, jurors gave her the highest average score across these measures, although the difference was small. She was also seen as significantly more aggressive when she appeared remotely than when she was present in court. 'Aggressive' for a lawyer can be an ambiguous description – it could suggest strong and effective, or conversely, hostile and unfair to witnesses. With both prosecutor and defence lawyer, being aggressive was seen as a positive quality. For the prosecutor it was (strongly) aligned with being well-prepared and convincing. With the defence lawyer it is was (weakly) associated with being more credible. In general, in contrast to the prosecutor, the experimental condition made relatively little difference to the perceived performance of the defence lawyer.

Table 8
 Perception of defence lawyer
 'The defence lawyer was...'

Position of accused	Aggressive	Well- prepared	Believable	Credible	Weak	Convincing	Average of items
In courtroom							
Alone	3.1	5.0	4.6	4.7	2.9	4.6	4.4
Seated with lawyer	2.8	5.3	4.5	4.8	3.0	4.4	4.3
<i>Sub-total</i>	2.9	5.2	4.6	4.7	3.0	4.5	4.3
Appearing by video							
Alone	2.5	5.2	4.9	5.1	2.8	4.6	4.4
Seated with lawyer	3.3	5.3	4.9	4.9	2.8	4.7	4.6
<i>Sub-total</i>	2.9	5.3	4.9	5.0	2.8	4.6	4.5
Both settings							
Alone	2.8	5.1	4.8	4.9	2.9	4.6	4.4
Seated with lawyer	3.0	5.3	4.7	4.8	2.9	4.5	4.4
Total	2.9	5.2	4.7	4.9	2.9	4.6	4.1
Estimated differences due to							
Use of video	-0.06	0.09	0.32 *	0.30 *	-0.14	0.16	0.15
Presence of lawyer	0.25	0.20	-0.04	-0.05	0.02	-0.07	0.04
Distributed court v dock condition	0.18	0.29	0.28	0.25	-0.12	0.09	0.26
Distributed condition	0.53 **	0.12	0.21	0.08	-0.10	0.20	0.21

Note: Respondents used a 7-point scale, ranging from 1=Not at all to 7=Very.

*** Significant at .001 level, ** significant at .01 level, * significant at .05 level

In calculating average the score for 'Weak' is subtracted from 7 to make it positive

STUDY FINDINGS

TABLE 9
Visibility of trial participants

Position of accused	Juror could see accused's		
	Face when he was speaking	Expression when he was listening	Gestures
In courtroom			
Alone, in dock	4.7	3.2	4.0
Seated with lawyer	4.7	3.1	3.9
<i>Sub-total</i>	4.7	3.1	3.9
Appearing by video			
Alone	4.7	4.4	4.4
Seated with lawyer	4.6	4.1	4.2
<i>Sub-total</i>	4.6	4.2	4.3
Both settings			
Alone	4.7	3.8	4.2
Seated with lawyer	4.7	3.6	4.0
Total	4.7	3.7	4.1
Estimated differences due to			
Use of video	-0.07	1.10 ***	0.36 ***
Presence of lawyer	-0.06	-0.21	-0.15
Distributed court v dock condition	-0.13	0.90 ***	0.22

Note: Respondents used a 7-point scale, ranging from 1=Not at all to 7=Very much.

*** Significant at .001 level, ** significant at .01 level, * significant at .05 level

Table 9 presents jurors' assessment of the visibility of the participants. In most of the previous discussions, the technology played relatively little part in accounting for differences between experimental groups. In terms of visibility the technology made a big difference – seeing the accused on a screen significantly improved the jury's ability to see expressions of the accused's face 'when he was listening' as well as to see his gestures. This may have been partly an artifact of the setting in the North Sydney courthouse where the jurors sat in the public gallery behind the bar table. To see the accused in the dock they had to look to the side of the courtroom, and to see him at the bar table some of them had a partly obscured view.

However, while it might be useful for jurors to see the reaction of the accused to a witness's testimony, what arguably matters most in a trial in terms of visibility is whether jurors can see the accused's face when he is speaking. There is no difference between the conditions on this measure. This confirms that a medium size screen (75") that presents the accused close to life size provides just as good a view of the accused as if he were present in the witness box.

Nevertheless, his gestures were significantly more likely to be reported to be visible on the screen than when he was in the witness box. So it is possible that in a video environment, the jury gets a clearer, or even exaggerated view of the accused when he appears on a screen than when he appears in person.

TABLE 10
Audibility of trial

	Could follow lawyers	Could always tell who was speaking	Confusing whose turn it was to speak	Could hear everything Mr T said
Position of accused				
In courtroom				
Alone	4.7	4.8	1.8	4.6
Seated with lawyer	4.5	4.9	1.6	4.6
<i>Sub-total</i>	4.6	4.8	1.7	4.6
Appearing by video				
Alone	4.7	4.9	1.6	4.7
Seated with lawyer	4.7	4.9	1.6	4.8
<i>Sub-total</i>	4.7	4.9	1.6	4.8
Both settings				
Alone	4.7	4.8	1.7	4.7
Seated with lawyer	4.6	4.9	1.6	4.7
Total	4.6	4.9	1.7	4.7
Estimated differences due to				
Use of video	0.06	0.04	-0.09	0.14 *
Presence of lawyer	-0.06	0.02	-0.12	0.01
Distributed court v dock condition	0.01	0.05	-0.22	0.15
Distributed condition	0.04	0.00	-0.07	0.13

Note: Respondents used a 7-point scale, ranging from 1=Not at all to 7=Very much.

*** Significant at .001 level, ** significant at .01 level, * significant at .05 level

In an oral procedure, such as a criminal trial, a juror's ability to hear what is being said is arguably even more important than being able to see the participants. Table 10 explores some of the issues associated with audibility. Seeing the accused on the screen – or rather hearing him via a video link – allows the jurors to hear him better than if he were present in the courtroom. Those who saw the accused on the screen were significantly more likely to say they 'heard everything Mr Thompson said'. There was no difference between the four conditions on other measures – whether they could 'follow' what the lawyers were saying, whether they could tell who was speaking and whether there was any confusion about whose turn it was to speak. Directional sound, such as that used in this study, largely eliminates the issue (sometimes found with video hearings with a single sound feed) that it is not always possible to identify who is speaking.

So both for visibility and audibility, technology was an issue, but in both cases the video condition was better than the live condition. It is possible that this difference would not be found in a courtroom with higher quality acoustic treatment of the walls and other surfaces. However, the objective of the distributed court study was to see if technological mediation made visibility and audibility worse. It was not expected to make them better, so any finding along these lines can be considered confirmation that there is no disadvantage, at least in terms of sight and sound, to use of this technology.

Proximity between lawyer and client did not make a difference in responses for these matters.

STUDY FINDINGS

TABLE 11
Rapport between trial participants

Table 11 examines the rapport between trial participants, from the perspective of the jurors. These could be seen, in a sense, as the outcome of adequate visibility and audibility. Jurors reported on whether the 'conversation flowed smoothly', whether there was a 'good rapport' between Mr Thompson and his lawyer, and whether the prosecutor made eye contact with the accused during the cross-examination. Eye contact, like directional sound, was a key ingredient of the distributed court condition.

The conversation was reported to flow equally well under all four conditions, so there was no disadvantage resulting from the use of video technology. Of course, the trial involved professional actors who delivered their lines consistently across the different conditions, so it is perhaps unwise to infer from this that there are no obstacles to using video technologies effectively. But it does suggest that, if the participants are skilled at using the technology, it should not prove a barrier to effective communication.

Position of accused	Conversation flowed smoothly	Good rapport between Mr T and lawyer	Prosecutor made eye contact with accused
In courtroom			
Alone, in dock	4.2	3.3	4.1
Seated with lawyer	4.1	3.5	4.0
<i>Sub-total</i>	<i>4.1</i>	<i>3.4</i>	<i>4.0</i>
Appearing by video			
Alone	4.1	3.1	4.2
Seated with lawyer	4.1	3.4	3.8
<i>Sub-total</i>	<i>4.1</i>	<i>3.3</i>	<i>4.0</i>
Both settings			
Alone	4.2	3.2	4.2
Seated with lawyer	4.1	3.4	3.9
Total	4.1	3.3	4.0
Estimated differences due to			
Use of video	-0.02	-0.09	-0.02
Presence of lawyer	-0.05	0.23 *	-0.26
Distributed court v dock condition	-0.07	0.14	-0.28

Note: Respondents used a 7-point scale, ranging from 1=Not at all to 7=Very much.

*** Significant at .001 level, ** significant at .01 level, * significant at .05 level

The rapport between the client and his lawyer was seen to be significantly stronger when the two were sitting alongside each other, either in the courtroom or the remote room. This rapport could be said to provide a marker of effective representation. While it might make no difference to the jury in terms of their perception of the character of the accused, it could reassure them about the fairness of the process. In real trials it is likely that the perceived difference could be greater. As noted above, the lawyer and client avoided small talk when they were seated alongside each other to maintain experimental consistency with the other conditions.

The prosecutor was seen to make eye contact with the accused just as well when the accused was in the witness box in the courtroom (4.0 on a scale of 1 to 7), and when he was sitting at a table in the remote room (also 4.0). This confirms the possibility that distributed technology can perform as well as face-to-face encounters in this regard. What does appear a little strange is that this eye contact is seen to be significantly less successful when the accused is alongside his lawyer. This is surprising because in the courtroom when the accused is giving evidence he is in the witness box, exactly the same place he is in when he is in the dock condition. When he is in the remote room he is seated in exactly the same seating configuration when his lawyer is beside him or in the courtroom. One possibility is that 'eye contact' in this context is a proxy for the ability of the prosecutor to challenge the accused directly about his story without interference from a third party, his representative. However, this does not account for the difference in the live condition, where the accused is some distance from the lawyer. The survey provides no adequate explanation for this anomaly.

STUDY FINDINGS

TABLE 12
Juror experience of trial

Table 12 directs attention to the jurors themselves – how they experienced the trial: whether their minds wandered, whether they felt 'completely involved' in what was happening, whether they had to concentrate, whether it felt like a real trial and whether they thought the courtroom layout was 'realistic'. Overall there were few differences between the conditions, suggesting that the distributed court configuration does not significantly change the way jurors experience the trial process. There were, however, two notable differences, in opposite directions. Jurors reported that the two conditions using video testimony felt more like a 'real trial' than the conditions where the participants were all in the courtroom. Perhaps this reflects the influence of television, which provides most people with their understanding of how courts work. On the other hand, seeing the accused in the dock was considered a more 'realistic court layout' than the distributed condition. This is an accurate assessment of the normal configuration of the courtroom rather than a judgment of how well it works.

Table 12
Juror experience of trial

Position of accused	Felt like a real trial	Mind sometimes wandered	Had to concentrate to hear people	Completely involved in experience	Courtroom layout felt realistic
In courtroom					
Alone, in dock	4.0	2.1	2.3	4.4	4.6
Seated with lawyer	4.2	2.1	2.2	4.4	4.5
<i>Sub-total</i>	<i>4.1</i>	<i>2.1</i>	<i>2.3</i>	<i>4.4</i>	<i>4.5</i>
Appearing by video					
Alone	4.3	2.2	2.2	4.4	4.5
Seated with lawyer	4.3	2.3	2.2	4.3	4.3
<i>Sub-total</i>	<i>4.3</i>	<i>2.3</i>	<i>2.2</i>	<i>4.3</i>	<i>4.4</i>
Both settings					
Alone	4.2	2.2	2.2	4.4	4.5
Seated with lawyer	4.3	2.2	2.2	4.4	4.4
Total	4.2	2.2	2.2	4.4	4.5
Estimated differences due to					
Use of video	0.20 *	0.12	-0.08	-0.08	-0.09
Presence of lawyer	0.09	0.07	-0.03	-0.02	-0.13
Distributed court v dock condition	0.29 *	0.19	-0.12	-0.10	-0.21 *

Note: Respondents used a 7-point scale, ranging from 1=Not at all to 7=Very much.

*** Significant at .001 level, ** significant at .01 level, * significant at .05 level.

PANEL DISCUSSIONS



FIGURE 24
Defendant seated in dock with defense counsel close by
Watercolour illustration: Michael Blazewicz

After the demonstration in Brisbane and the experiment in North Sydney we held panel discussions with key stakeholders. Some of the feedback received during these sessions has been incorporated into this report. Some of the contributions to the discussion are summarised below.

Chief Justice Wayne Martin (Chief Justice, Western Australia) believes it is only a matter of time before this kind of immersive technology is made available to courts and used on a daily basis. If we consider the current climate, in regional areas of Australia, video conferencing is already the norm. In child sexual abuse cases, pre-recorded testimony and cross-examination is already being presented digitally to juries. While this may make some people apprehensive, it is important to remember nowadays that it is the norm for younger generations to receive information via a screen. This is an inevitable step courts must take.

Michael Talbot (Court Executive, NSW Department of Justice) stressed the importance of this kind of technology to be integrated into all court systems from administrative and staff training to judges, the accused, vulnerable witnesses and expert testimonies. He encourages courts to embrace this development but warns that we should also be mindful of the possible prejudicial aspects that may creep into court proceedings. It should be noted that civil and criminal cases present different challenges for the technology such as documenting and presenting evidence, coordinating many groups of people at the right time and incorporating technical alternatives if connections fail.

Mark Ierace (Senior Public Defender) noted that, in spite of the cutting-edge technology that was deployed in the demonstration, when the actor playing the accused appeared in the court room at the demonstration's end, his actual appearance was still quite different to how he had appeared on the screen. As well, he expressed concern that there was a dissociation between the audience (and therefore fact-finders) and the person giving evidence on screen, that does not necessarily happen when evidence is given face-to-face. He expressed the view that while the technology was of great value in almost every aspect of criminal proceedings, including legal argument, mentions, bail applications and then handing down of sentences, it was not appropriate for fact-finding; that is, where a jury or judge hears witness evidence, and the evidence of the accused, in order to determine whether or not he or she is guilty.

Lloyd Babb (Director of Public Prosecution) reminded us of the reality of his work. He said that his prosecutors have to travel long distances for mentions and last year alone he received 27 reported car accidents, with staff often driving to locations the night before to ensure they arrive to court on time. This type of technology would be perfect for those matters especially if it is performed as professionally as this Distributed Courtroom.

Mark Hanson, ICE Design (Project Industry Partners - Consulting Engineers in Acoustics and Court Technologies) noted that the experiment successfully validates the concept of a Distributed Courtroom but reinforces the significant challenges of integrating correctly positioned equipment into a conventional courtroom layout. In Court Technologies must be considered at the outset of a Distributed Courtroom design and cannot be 'stuck on' as an afterthought; moreover, the room layout for a Distributed Courtroom must be driven by the spatial demands of the technology rather than precedent if natural communication and interaction is to be achieved.

This study was designed to provide empirical evidence on the impact of immersive technology on court proceedings. It aimed to determine whether video-enabled hearings could replicate face-to-face ones, ensuring that technology in the courts is used to improve both the consumer experience and citizen access to justice.

The study showed that the move toward virtual justice is a viable option for courts to consider: technology improves audibility and visibility of the trial, does not compromise the presumption of innocence and does not make the trial seem less 'real' to jurors. The use of the Distributed Courtroom did, however, differentially affect perceptions of the prosecutor and the defence lawyer.

CONCLUSIONS

Specific conclusions that may be drawn from this study include the following:

Technology makes trials easier to see and hear

Technology does affect the way jurors perceive audibility and visibility – they consider trials using video technology as better in terms of being able to see and hear than those in which the participants are in the courtroom. If the court technology configuration is designed appropriately there is no reason to suppose that it will be harder for jurors to see and hear the evidence using video technology. This was, however, an experiment in which experts collaborated to get the technology working to a high standard – and with actors playing the roles of court participants. Whether this is always possible under usual conditions would need to be tested.

Technology does not affect perceptions of the environment, but defendant location does

The environment was seen as more positive for the accused when he was seated alongside his lawyer. Technology had little or no effect on how the environment was perceived. This suggests that jurors judge whether the environment is intimidating and isolating, or comforting and welcoming based largely on social criteria. Any changes proposed to use of technology should therefore carefully pay attention to the changes it enables in the social environment, such as the opportunities for clients to consult their lawyers, or lawyers for the two sides to confer.

The defendant's location in the courtroom affects verdict and perceptions of the evidence

Defendants were most likely to be considered guilty when they were in the dock in a courtroom, and least likely when sitting with their lawyer in the distributed condition. The prosecution's case was also seen to be stronger when the accused was in the dock, and weakest in the distributed condition. Sitting alongside one's lawyer made the accused appear more honest, although for most other measures, including credibility there was no significant difference between conditions.

Technology does not undermine the presumption of innocence, but defendant location does

There is no evidence that the distributed condition undermines the presumption of innocence. On the other hand, the 'standard' courtroom configuration, with the accused in a dock, does represent such a threat. Whether it is logistically possible for lawyers to sit beside their clients in video rooms is an important issue that would need to be considered by legal aid and public defender organisations, bar associations and other interested parties.

Technology affects perceptions of prosecutors and defence lawyers in different ways

Prosecutors were considered more credible and stronger when they were physically present in the courtroom. When they appeared on a screen their credibility diminished. The perceived strength of defence lawyers was less affected by whether they appeared on a screen or in person, and, if anything, their credibility was enhanced by appearing remotely.

Technology does not make trials seem less 'real'

Jurors accepted the distributed condition trial as even more 'real' than a trial with the standard configuration even if they recognized that seeing the accused in the dock was the normal situation. It is likely that in real trials seeing parties on a screen would not be considered unusual.

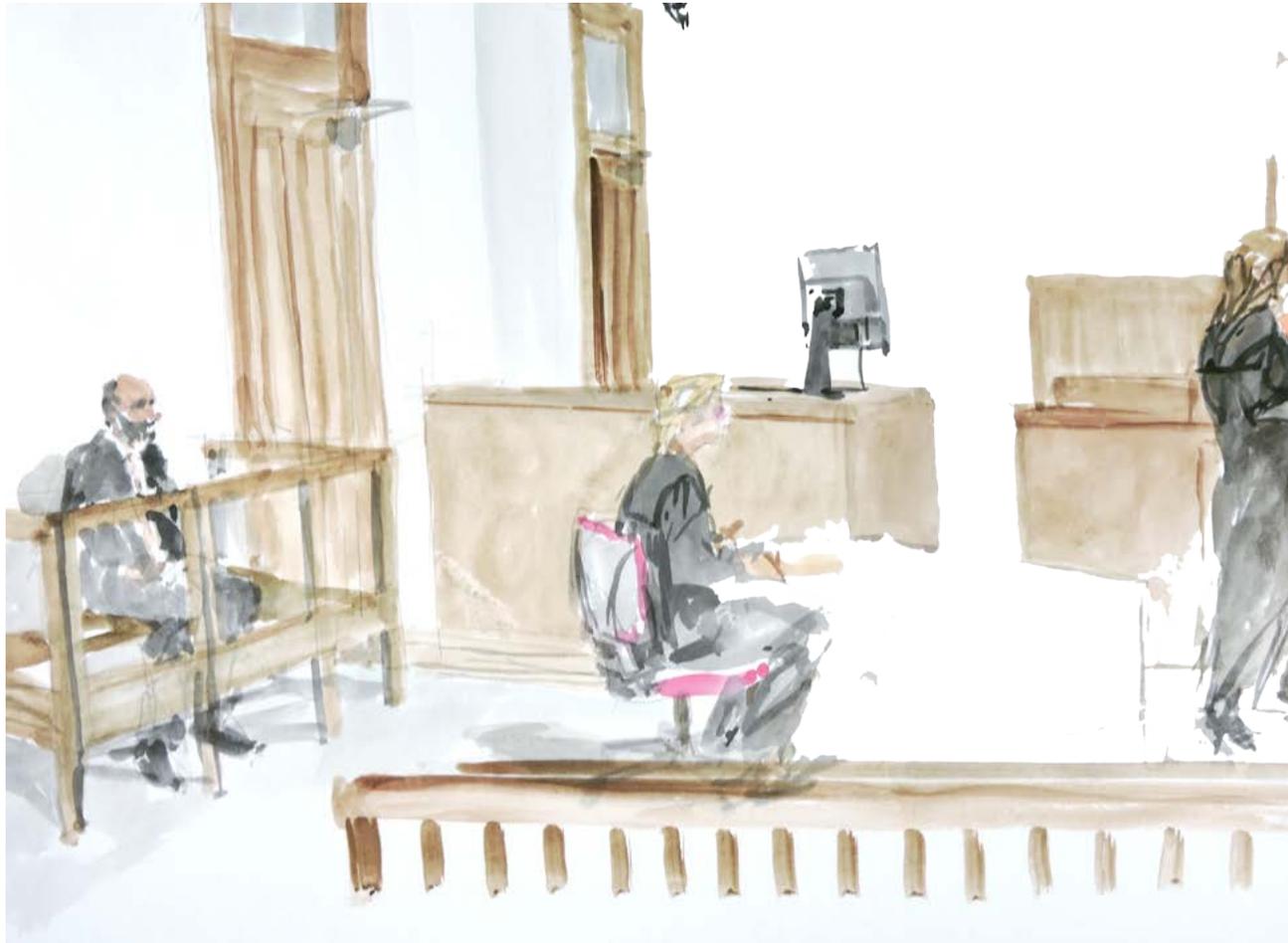


FIGURE 25
Defendant seated in the dock
Watercolour illustration: Michael Blazewicz

DESIGN ISSUES

1 Key principles for a Distributed Courtroom

As if they were co-present in a well-designed courtroom, participants communicating via video link should:

- perceive other participants at 'true to life', with a space of about half a metre on either side to allow for hand and arm gestures
- hear other participants clearly, with sound coming from the location of the image
- be able to make eye contact with other participants
- be able to carry on a normal verbal interaction with other participants.

2 Room Configuration

Participants should be arrayed around the perimeter of the room, either in person or on a screen. Screens could be fixed or retractable, and tables and chairs placed in position as required. Tables should be able to be pivoted, lengthened or duplicated to accommodate larger groups.

3 Standard configuration

The core configuration places the judge at the front, one party on the judge's left at approximately 45 degree angle, the other party to the judge's right facing in a mirrored position. The other spots can be filled according to the specific demands of the case – one or more witness positions, one or more defendant locations, public seating, jury, special position for complainants or victims, and press.

4 Flexible furniture

In order to support a range of different configurations, furniture should be suitable for multiple users and able to be customized and adjusted to cope with different needs. Each location would have a screen for remote participants, as well as a table and chairs for when the participants are present in court. Seated and standing positions at each location should be supported, typically by provision of a lectern (placed in position when required). Larger rooms should be able to accommodate additional rows of seating for some of the locations.



FIGURE 26
Witness in witness box.
Watercolour illustration: Michael Blazewicz

5 Place of witness

A witness could be in one of several positions, including alongside the Bench or directly opposite the judge. With two simultaneous witnesses, two positions may be required. When the judge is remote, a position directly opposite the judge might provide best sightlines. To optimise sightlines, and minimise the number of cameras required, lawyers may share a (portable) stand-up lectern to question the witness.

6 Place of the accused

It is anticipated that if defendants are physically present in a Distributed Courtroom they would sit beside their lawyers (if represented) or at the defence table by themselves (if unrepresented). This special facility would be used for such a defendant only if two other participants were to appear remotely – most likely either the judge and prosecutor, or judge and witness. The Distributed Courtroom makes explicit provision for defendants who are found by the court to be dangerous, potentially disruptive or at risk of assault – they would appear remotely. No provision is therefore required for a dock.

DISTRIBUTED COURTROOM GUIDELINES

7 Public gallery

Some sites that are connected together to form the distributed court will have provision for a public gallery. Others, such as in prisons, judicial chambers and remote witness rooms, will not. If the public gallery, or part of the gallery, is set outside the main “circle of interaction”, additional screens may be required. Alternatively, viewing rooms might serve as public galleries.

8 Room size

The key principle involved in identifying room size is enabling remote parties to see each other, and see the judge. If the remote parties are in rooms where no audience is required an immersive conference room (with the ‘other side’ of the table via a video link mirroring the co-present side) may be suitable, or a small meeting room with medium-size screens, set apart at least two metres to allow for simulated eye contact with the other participants. Where a physical courtroom is used the room would generally need to be about a minimum of 12 metres wide to accommodate a bench and screens angled towards the audience. In rectangular rooms the long axis of the room should be used for the Bench.



FIGURE 27

Defendant appearing remotely via the screen on the left
Watercolour illustration by Michael Blazewicz

9 Distances

Screens should be at least 3 metres away from participants if cameras are mounted on top of 23 inch screens, in order to simulate eye contact. Larger screens require proportionately larger distances – 75 inch screens require 5 metre distances. If screens have cameras set directly behind them – similar to a teleprompter – the distances are less important.

10 Sightlines

Participants should have clear unimpeded sightlines to other participants, whether seated or standing. Viewers should see faces on screens at no less than a 45 degree angle – this would be the case for example where two contiguous participant positions involve remote participants. Portable lecterns can be moved to positions that provide the best visibility for participants and audience. To maximise sight lines, courts should consider allowing participants to remain seated when speaking, following the practice of many tribunals.

11 Lighting

The faces of participants should be bright enough to be lit with full-spectrum lighting visible to other participants, whether naturally or artificially, and without obvious shadows, but not so bright that any participant has to squint or blink. Desk lamps facing downwards onto a light surface could be used to reflect light onto the faces of participants who are seated. Appropriate placement of lighting, and selection of colour temperature of the lights is required to ensure that images are not in shadow and skin tones are faithfully represented.

12 Sound

Getting the acoustics of a room right requires specialist skills. In general the front walls of courtrooms tend to reflect sound, to allow other participants and the audience to hear what is said, while back walls are acoustically treated to limit disruption from external sounds or noise from the gallery. Rooms with lively acoustics that work well for hearings where all the parties are present can produce too much echo or drumminess in a video link hearing. Additional absorbent coverings for floor, walls, ceilings and furniture are generally required. Larger modern courtrooms have systems to amplify natural voices, with the natural voice itself providing directional cues. Achieving directional sound from video links where all the directional cues come from technology require some adjustment to auditory systems. Small rooms may be adequately served by highly articulate small audio monitoring loudspeakers located with the screen. Larger rooms are likely to require line array style loudspeakers located in the ceiling and/or walls in order to provide optimal directional cues for listeners. Round or hexagonal rooms pose particular challenges for acoustics – they tend to disorient listeners, so rectangular rooms with furniture that can be arranged in a oval or hexagonal shape is generally better. Volume and tonal balance may need to be adjusted for speakers with different vocal ranges, or variation in rhythm and volume.

DISTRIBUTED COURTROOM GUIDELINES

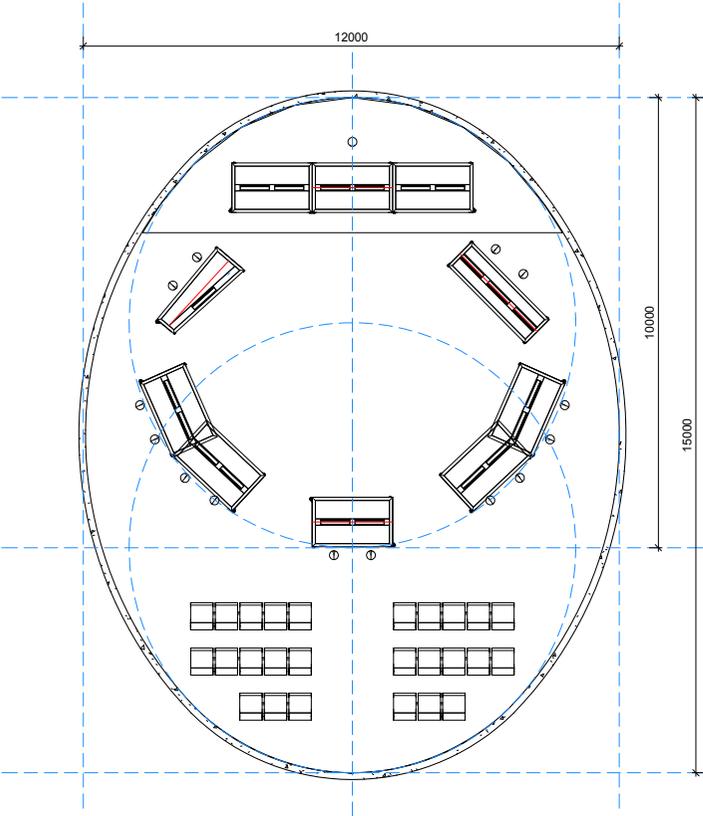


FIGURE 28
Possible courtroom layout to allow participants to be physically present or present via technological means (real-time representing screen)
Plan: PTW Architects

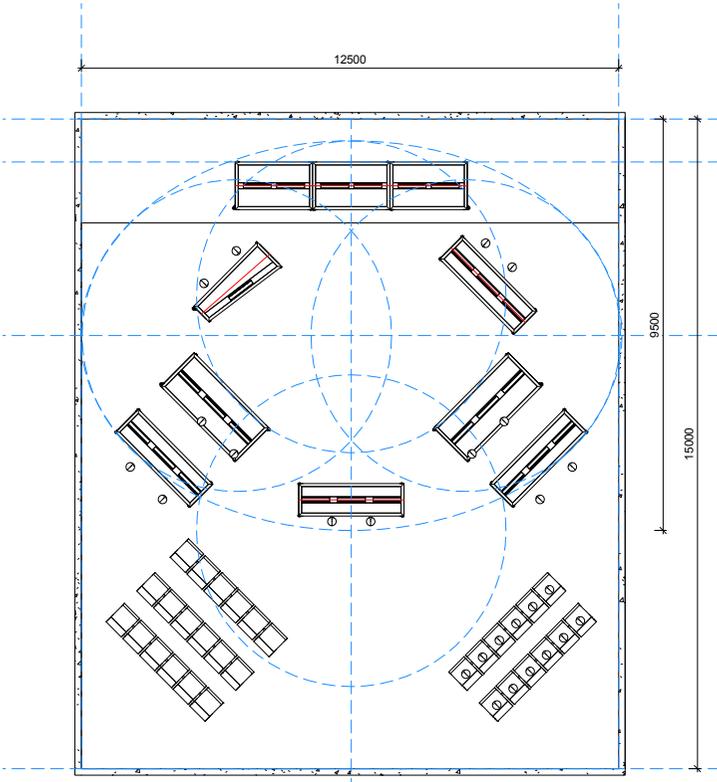
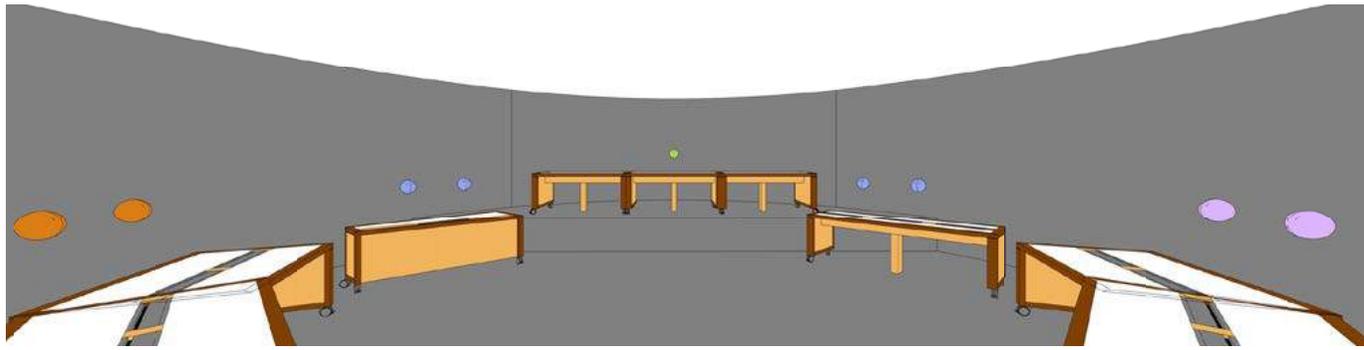


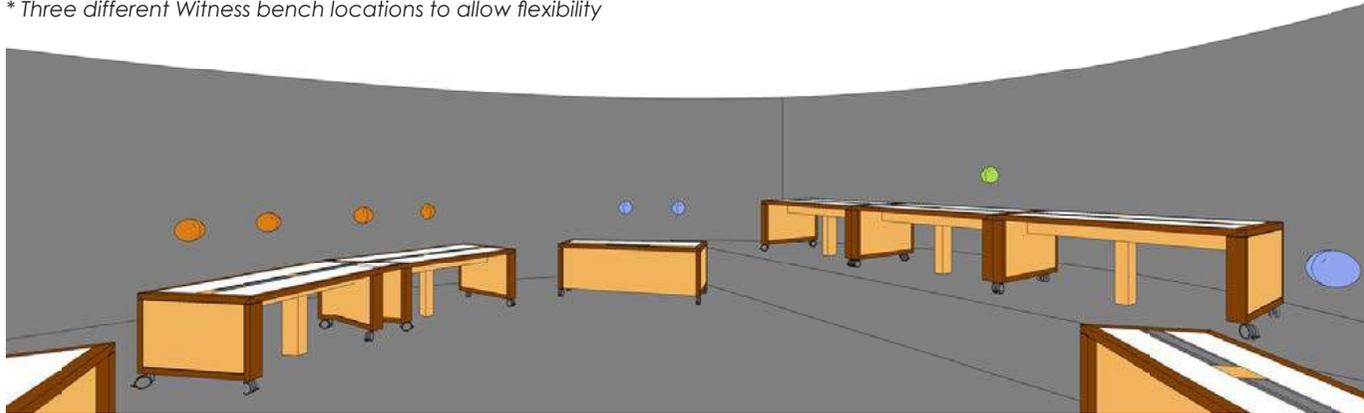
FIGURE 29
Alternative positions for the witnesses are possible. Defendants sit alongside Counsel at the Defence table
Plan: PTW Architects

DISTRIBUTED COURTROOM GUIDELINES



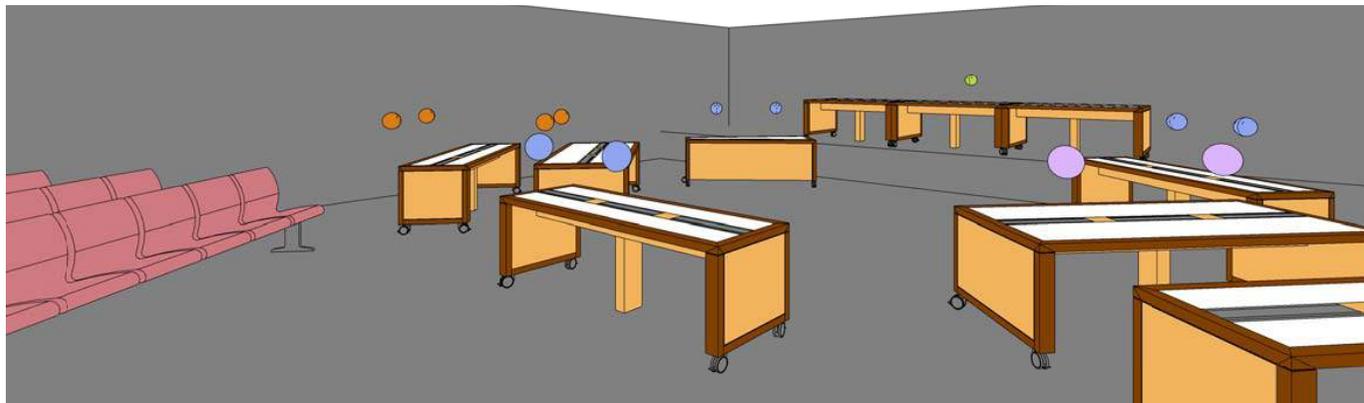
Prosecution Witness* Judge Defence

* Three different Witness bench locations to allow flexibility



Prosecution Witness* Judge Defence

* Three different Witness bench locations to allow flexibility



Prosecution Witness* Judge Defence

* Three different Witness bench locations to allow flexibility

FIGURE 30
View from witness bench in elliptical court (Figure 28),
Perspective: PTW Architects

FIGURE 31
View from defence table in elliptical court (Figure 28),
Perspective: PTW Architects

FIGURE 32
View from public gallery in elliptical court (Figure 28),
Perspective: PTW Architects

DESIGN ISSUES

13 Cameras

Camera and display screen technologies have the capacity to enhance and change an image – screens are generally brighter than the surroundings they are set in, so should be dimmed. Cameras are affected by lighting (colour temperature) and placement of the lighting. The colour of the image on the screen should be rendered accordingly to suit the courtroom.

Cameras and screens should be placed in such a way as to allow the same eye contact as naturally occurs when participants are physically present. Camera remote controls should allow zoom control and fine-level positioning of cameras. For small court rooms 75" screens are probably adequate. For medium- or larger-size rooms screens should be at least 90" to achieve the illusion of life size images. Screens should be oriented in landscape mode for seated participants and portrait mode for those standing. Larger screens would be needed for participants who both sit and stand, to maintain the life-size image.

The zoom feature can be utilised on the cameras to appropriately adjust the size of the participants so they are relative to physical participants in the courtroom. Note: by contrast, courtroom participants do not need to appear life-size to remote participants in the other rooms so small screens there may be adequate.

14 Broadband connection

Video bandwidth needs to be of sufficient capacity to provide high-resolution images and audio, and video links must have minimal delay to facilitate natural communication.

QUALITY CHECKING PROCESS

1 Redundancy

Redundancy must be built into the system, via options such as a dedicated intranet line for emergencies, a regular video link without directional sound to one person or group at a time, or telephone. There should always be a fall-back option.

2 Daily checking routines

Regular testing of equipment and video links is essential. Daily checks of equipment that is being used for trials can reduce the risk of failure. The process used in the Queensland Supreme and District Court, in which prosecutors come in early on trial days to test their displays, can reduce the risk of equipment incompatibilities, as well as technical failure.

3 Remote testing and control

The modern videoconferencing system should be capable of being tested and adjusted by technical staff both elsewhere in the court complex or off-site. The system should also be capable of being managed from another site – for example when the room is being used as a satellite room for a process being conducted in another courtroom or another jurisdiction.

4 Training for in-court staff

As with any new technology, staff training is essential, both initially as new technologies are first installed and on an ongoing basis to ensure proper knowledge management and succession planning. Which staff are the most suitable will depend on the level of forum and nature of the hearing. In practice, judge's associates and junior solicitors sometimes tend to be the most technologically competent people in higher court matters. Clerks and registrars are typically given the task of managing video links in local courts, while tribunal members are usually required to be multi-skilled.

DISTRIBUTED COURTROOM GUIDELINES

TYPES OF FACILITIES

A Court buildings and precincts

Each court complex should have a range of video-link facilities suitable for its size and case mix. This might include a conference room for the judiciary, and remote justice participant suites, as well as video-enabled courtrooms and hearing rooms set up with Distributed Courtroom capacity.

B Court and hearing rooms

Large courts may be able to support one room configured as a fully distributed hearing room, together with other rooms where any combination of participants can be remote at a time.

C Multi-purpose meeting rooms

Some meeting rooms might be configured to allow tribunal hearings with two remote participants (e.g. one tribunal member, an applicant), for a judge to conduct a civil hearing or a callover/scheduling session with two lawyers.

D Remote justice participant suites

Remote participation suites should be available in a convenient location close to the court or legal precinct although not necessarily in each court building. These facilities could be available for witnesses, litigants, lawyers, interpreters, and in some cases defendants; they may also be available for clients to consult their lawyers. Some facilities might support protected, child or vulnerable witnesses. The background of the remote room should have neutral block colours, and no distracting decorations. Importantly, care must be taken with lighting and backgrounds so that participants' expressions are properly captured regardless of variations in skin tone. See *Gateways to Justice* Guidelines for detailed specifications for these facilities.

E Prisons, remand centres, legal aid centres, police stations and other public buildings

Remote participant facilities could be accessed in a range of buildings, allowing participants to take part accompanied by their lawyer and/or interpreter. Courts should insist on minimum design principles being met.

JUSTICE PROCESSES

1 Process to request use of video link

When to use video links - whether for one person appearing remotely, or in the case of a Distributed Courtroom, several - is a matter for judicial discretion within parameters established by legislation and court rules.

2 Default options

For some types of matter, video links would be available as a routine option for all or part of the hearing (subject to objection). For other types of hearing in-person attendance of participants would be required (subject to appeal).

3 Video link as routine option

Matters could be scheduled for use of video links for one or more participants where these are more convenient, where adequate facilities are available and where this would not be unfair to any party. Any decision to use a video link could be subject to objection on any of these three grounds.

For civil and administrative matters: all hearings estimated to have a duration of five days or less.

For lower court criminal matters: scheduling matters, mentions, pleas, bail applications, protective applications, testimony from vulnerable witnesses or defendants, trials and sentencing for traffic and minor criminal matters, license restoration hearings

For higher criminal court matters: scheduling matters, colloquies, bail applications, pleas, pre-trial submissions, testimony from vulnerable witnesses or defendants or appeals.



FIGURE 33
Defendant and lawyer appearing remotely via a screen.
Watercolour illustration by Michael Blazewicz

DISTRIBUTED COURTROOM GUIDELINES

4 Video link hearings or part-hearings on application

Matters where the default option is for all parties to physically present in court, but where application could be made for use of video link facilities include:

For civil and administrative matters: all hearings estimated to have a duration of more than five days.

For lower court criminal matters: trials and sentencing hearings (excluding traffic and other minor offences). For example, cases from one (local) court to another by video link to avoid the participants having to return on the next day. This is used in some indigenous courts in Western Australia to clear backlogs from one court by moving them to another.

For higher criminal court matters: trials and sentencing hearings

High security trials: in some mafia-type trials where credible threats to the safety of the accused, judge or jury – various configurations are possible including anonymous juries in secret locations, remote defendants alongside their lawyers, in-court witnesses with pixelated images for the public gallery, and remote judges and prosecutors.

Evidence from vulnerable witnesses. With the consent of the accused, the witness could present testimony live in court while the accused observes from a video link before returning to the courtroom. This is standard practice in some European courts and has been used for at least one trial in NSW.

5 Presumption of innocence criterion

If the prosecution seeks to have an accused person placed in a condition of confinement within the court, the defence should have the right to have the trial conducted instead using Distributed Courtroom facilities.

To preserve the equality of arms, both prosecution and defence teams would be in remote facilities, with the judge, jury, witnesses and public gallery in the main courtroom.

'Condition of confinement' would be defined as placement in a security dock, or in a dock that is not alongside the bar table, or use of shackles.

6 Criteria to use to approve use of video links

Where:

(a) the default option is for all parties to be physically present in court and

(b) there is no proposal to place the accused in a condition of confinement within the court, the following principles should be considered by courts in considering applications to use video links:

- Will the quality of evidence available to the fact-finders be equivalent to that available in the face-to-face condition?
- Can the accused (if represented) communicate effectively with counsel in private?
- Can the presiding officer control the process adequately?
- Can counsel confer privately with each other?
- Is the video link fast and reliable, and are support staff available to provide immediate support if required?
- Does the remote facility have adequate support for orientation and technical support for the remote participants?

