



# Remote Witnesses: Improving Their Experience of Technology, Orientation and Environment When Participating via Audio- Visual Links

RESEARCH ARTICLE

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## ABSTRACT

Courts are making increasing use of audio-visual links (AVL) for many purposes, including taking evidence from witnesses. However, there has been little in the way of research to provide guidance for courts and judges on conditions or standards that should apply to their use. Participant expert and lay witnesses in a mock trial were randomly assigned to AVL experiences that varied (a) the quality of the technology and supporting physical environment, and (b) the way witnesses were informed, supported and orientated. After providing their testimony, mock witnesses answered questions about their experience. We found that high quality technology and appropriately designed supporting physical environments increased perceived respect. Similarly, enhanced information and support improved perceived voice and rapport. Further, the combination of advanced environment and process had a compounding effect on perceived voice and respect, suggesting that courts seeking the best outcomes will implement both aspects. These results have significant implications for judicial officers and court administrators making decisions about AVL use, and implementing the AVL design and operation.

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In recent decades, courts worldwide have rapidly adopted audio-visual technology to link participants from disparate locations to court proceedings.<sup>1</sup> In Australia, early uses of audio-visual links (AVLs)<sup>2</sup> included taking evidence from children and other vulnerable witnesses and linking defendants in custody to the courtroom. However, researchers have catalogued the expansion in court use to take testimony from witnesses generally, to provide interpreters, to conduct directions hearings, sentencing, and other case management and administrative procedures.<sup>3</sup> In the United States, child custody evaluations and other forensic assessment procedures are conducted remotely via AVL technology,<sup>4</sup> as are most family detention proceedings of asylum seekers (93 per cent between 2001–2016).<sup>5</sup> Increasing use of AVL was also a hallmark of the courts' response to COVID-19 in many jurisdictions worldwide,<sup>6</sup> leading to accelerated use of digital courts without much time to address weaknesses associated with its implementation.<sup>7</sup> However, relatively little empirical research has been conducted into effects of AVL in criminal proceedings and existing research has yielded mixed results.<sup>8</sup>

The present study was designed to investigate the impact of AVL on (1) the capacity of those in the courtroom to build rapport between the individual participating in court via AVL from a location outside the physical courtroom ('the remote participant') and (2) the procedural justice elements of voice and respect. Site inspections preceding the experimental design were conducted largely in two Australian states (Victoria and Western Australia), where courts make extensive use of AVL. A broadly representative sample of sites (27 courthouses and 22 remote AVL facilities) were assessed in terms of their qualities and operation of the AVL technology and the built environments in which they were situated. Interviews with 61 key stakeholders (including judicial officers, court staff, lawyers, expert witnesses, prison staff, and staff from witness support services) enabled the project team to explore factors perceived to impact the effectiveness of AVL court encounters from a wide range of perspectives.<sup>9</sup>

Experimental research generally supports the use of AVLs to spare children and other vulnerable witnesses the risk of increased trauma and intimidation associated with giving evidence in the courtroom.<sup>10</sup> For instance, an experimental study in which 100 children aged 5–12 years were

1 Laurence Dumoulin and Christian Licoppe, 'Videoconferencing, New Public Management, and Organizational Reform in the Judiciary' [2016] 8 *Policy and Internet* 313; Jane Donoghue, 'The Rise of Digital Justice: Courtroom Technology, Public Participation and Access to Justice' [2017] 80 *The Modern Law Review* 995; Hisashi Yamagata and Danielle Fox, 'Evaluating the Use of Videoconferencing Technology in Domestic Violence ex Parte Hearings: Assessing Procedural Consistency' [2017] 38 *Justice System Journal* 135; Ingrid V Eagly, Steven Shafer and Jana Whalley, 'Detaining Families: A Study of Asylum Adjudication in Family Detention' [2018] 106 *California Law Review* 785; Carolyn McKay, *The Pixelated Prisoner: Prison Video Links, Court 'Appearance' and the Justice Matrix* (Routledge 2018).

2 Audio-visual link or AVL is used to refer to any combination of hardware and software that enables audio-visual participation in court proceedings from locations external to the physical courtroom, eg videolink, videoconference, closed circuit television.

3 McKay (n 1); Emma Rowden and others, *Gateways to Justice: Design and Operational Guidelines for Remote Participation in Court Proceedings* (University of Western Sydney 2013); Anne Wallace, 'Virtual Justice in the Bush: The Use of Court Technology in Remote and Regional Australia' [2008] 19 *Journal of Law and Information Science* 1.

4 Midfield D Dale and Desiree Smith, 'Making the Case for Videoconferencing and Remote Child Custody Evaluations (RCCES): The Empirical, Ethical, and Evidentiary Arguments for Accepting New Technology' [2021] 27 *Psychology, Public Policy, and Law* 30.

5 Eagly, Shafer and Whalley (n 1).

6 To date, 168 jurisdictions confirmed hosting remote hearings. See Richard Susskind, 'Our Purpose' (*Remote Courts Worldwide*, 27 Mar 2020) <<https://remotecourts.org/>> accessed 05 July 2024.

7 Catrina Denvir and Amanda D Selvarajah, 'Safeguarding Access to Justice in the Age of the Online Court' [2021] 85(1) *The Modern Law Review* 25, 33.

8 Molly T Johnson and Elizabeth C Wiggins, 'Videoconferencing in Criminal Proceedings: Legal and Empirical Issues and Directions for Research' [2006] 28 *Law and Policy* 211; Dumoulin and Licoppe (n 1); Donoghue (n 1).

9 For more details on the interview findings, see: Emma Rowden, 'Remote Participation and the Distributed Court: An Approach to Court Architecture in the Age of Video-Mediated Communications' (PhD dissertation, University of Melbourne 2011); Anne Wallace, 'Justice and the "Virtual" Expert: Using Remote Witness Technology to Take Forensic Evidence' (PhD dissertation, University of Sydney 2011).

10 Gail S Goodman and others, 'Face-to-face Confrontation: Effects of Closed-Circuit Technology on Children's Eyewitness Testimony and Jurors' Decisions' [1998] 22 *Law and Human Behavior* 165; Louise Ellison and Vanessa E Munro, 'A Special Delivery? Exploring the Impact of Screens, Live-Links and Video Recorded Evidence on Mock Juror Deliberations in Rape Trials' [2014] 23 *Social and Legal Studies* 3; Martine B Powell and others, *An Evaluation of How Evidence is Elicited from Complainants of Child Sexual Abuse* (Royal Commission into Institutional Responses to Child Sexual Abuse 2016).

interviewed one or two days after an innocuous event showed no differences between AVL and in-person interviews in terms of memory accuracy.<sup>11</sup> However, there has been very little research into the impact of taking testimony by AVL from other categories of witnesses.<sup>12</sup> Findings as to AVL impact on witness credibility are mixed,<sup>13</sup> as are findings as to the impact on verdict where a witness testifies remotely.<sup>14</sup> A study conducted in the United States revealed that higher amounts were set for bail for defendants appearing remotely.<sup>15</sup> By contrast, an earlier study conducted in the United Kingdom did not see appreciable differences to the proportion of people granted bail when the defendant appeared by AVL as opposed to appearing in person, albeit data was limited and stakeholder views on the matter were mixed.<sup>16</sup> A developing body of qualitative and quantitative research suggests that appearing by AVL may compromise a defendant's ability to follow the proceedings, communicate with those in the courtroom,<sup>17</sup> and increase their feelings of isolation and alienation.<sup>18</sup>

Empirical investigations into the effects of AVLS in court have paid surprisingly little attention to the configuration and operation of the technology (e.g., screen size, audio quality, camera shot and framing). The few studies that have attempted to consider the quality of technology have generally examined it in isolation, without any consideration of additional factors that may interact with, and influence, its operation and effects. These include the built environment that supports the technology, and the procedures employed by courts in relation to its use.<sup>19</sup>

Further, empirical studies of court use of AVLS have generally lacked an overall theoretical framework that might assist in identifying the goals against which its impact should be assessed to provide a measure of consistency in approach. While court evaluations of AVLS tend to focus on efficiency,<sup>20</sup> a developing body of empirical work has drawn on theories of procedural justice to examine the success of AVL-mediated court encounters of witnesses appearing at trial.<sup>21</sup> Procedural justice theory proposes that the way in which individuals are treated during the court process can significantly impact their view of the fairness of the case outcomes and, in turn, influence public trust and confidence in the courts and perceptions of

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11 Gemma Hamilton and others, 'The Effects of Face-to-Face Versus Live Video-feed Interviewing on Children's Event Reports' [2016] 22 *Legal and Criminological Psychology* 260.

12 Anne Wallace, 'Using Videolink to Take Forensic Evidence: Lessons from an Australian Case Study' [2013] 17 *International Journal of Evidence and Proof* 221; Emma Rowden and Anne Wallace, 'Performing Expertise: The Design of Audiovisual Links and the Construction of the Remote Expert Witness in Court' [2019] 28 *Social & Legal Studies* 698.

13 Goodman and others (n 9); Judith Cashmore and Lily Trimboli, *An Evaluation of the New South Wales Sexual Assault Specialist Jurisdiction* (New South Wales Bureau of Crime Statistics and Research 2005); Sara Landström and Pär A Granhag, 'Children's Truthful and Deceptive Testimonies: How Camera Perspective Affects Adult Observers' Perception and Assessment' [2008] 14 *Psychology, Crime and Law* 381; Ellison and Munro (n 9). Cf David F Ross and others, 'The Impact of Protective Shields and Videotape Testimony on Conviction Rates in a Simulated Trial of Child Sexual Abuse' [1994] 18 *Law and Human Behavior* 553; Roderick CL Lindsay and others, 'What's Fair When a Child Testifies?' [1995] 25 *Journal of Applied Social Psychology* 870; Natalie Taylor and Jacqueline Joudo, *The Impact of Pre-Recorded Video and Closed Circuit Television Testimony by Adult Sexual Assault Complainants on Jury Decision-Making: An Experimental Study* (Research and Public Policy Series No. 68, Australian Institute of Criminology 2005); Bradley D McAuliff and Margaret Bull Kovera, 'Do Jurors Get What They Expect? Traditional Versus Alternative Forms of Children's Testimony' [2012] 18 *Psychology, Crime and Law* 27.

14 Ross and others (n 12); C O'Grady, *Child Witnesses and Jury Trials* (Western Australia Ministry of Justice 1996), cited in Judith Cashmore, 'Innovative Procedures for Child Witnesses' in Helen L Westcott, Graham M Davies and Ray HC Bull (eds), *Children's Testimony: A Handbook of Psychological Research and Forensic Practice* (Wiley 2002)); cf Lindsay and others (n 12); Cashmore and Trimboli (n 12); Ellison and Munro (n 9).

15 Shari S Diamond and others, 'Efficiency and Cost: The Impact of Videoconferenced Hearings on Bail Decisions' [2010] 100 *Journal of Criminal Law and Criminology* 869.

16 Joyce Plotnikoff and Richard Woolfson, *Preliminary Hearings: Video Links Evaluation of Pilot Projects* (London, The Home Office 1999); Joyce Plotnikoff and Richard Woolfson, *Evaluation of Video Link Pilot at Manchester Crown Court* (London, The Home Office 2000).

17 McKay (n 1). See also Legal Assistance Foundation of Metropolitan Chicago and Chicago Appleseed Fund for Justice, 'Videoconferencing in Removal Proceedings: A Case Study of the Chicago Immigration Court' (Chicago, IL 60604, 2005) <[http://chicagoappleseed.org/wp-content/uploads/2012/08/videoconfreport\\_080205.pdf](http://chicagoappleseed.org/wp-content/uploads/2012/08/videoconfreport_080205.pdf)> accessed 28 December 2023.

18 McKay (n 1).

19 Rowden (n 10); Rowden and others (n 3).

20 Yamagata and Fox (n 1) 136.

21 For instance *ibid*; Rowden (n 10); Christina Peristeridou and Dorris De Vocht, 'I'm not a cat! Remote criminal justice and a human-centred approach to the legitimacy of the trial' [2023] *Maastricht Journal of European and Comparative Law* 97.

their legitimacy.<sup>22</sup> Our exploration of the components of procedural fairness in this context took account of earlier work by media theorists who explored screen-mediated communications environments to identify aspects of AVL communications that may influence the quality of participant experiences.<sup>23</sup>

Research into the social aspects of interviewing techniques has identified the potential of building rapport between interviewer and interviewee to promote a greater disclosure, which seemed to be facilitated by a comfortable physical environment.<sup>24</sup> While this body of research originated within therapeutic contexts,<sup>25</sup> the capacity to build rapport with a witness has been identified as an important skill for police investigators<sup>26</sup> and for courtroom lawyers.<sup>27</sup> Procedural justice principles can contribute to rapport-building, as can strategies such as engagement with the witness, affinity or liking, and attentiveness, i.e., being considerate.<sup>28</sup>

This article reports findings from empirical research that drew on these bodies of work to investigate ways to improve AVL participation in court proceedings for witnesses testifying remotely. Unlike most earlier studies, we did not compare the experience of the in-court and remote witness. Instead, our starting point was the situation where evidence is given by AVL with the aim to investigate, by means of an experimental intervention, the effects of varying (a) the environment and (b) the process.

## 1.1 PROCEDURAL JUSTICE IN COURT AVLs

Four indicators of procedural justice were proposed by Tyler: *voice* (an individual's ability to state their position or concern); *neutrality* (impartiality of the decision-maker and the transparency of the decision-making process); *respect* (for the individual and their rights); and *trust* (sincere interest in wellbeing of participant).<sup>29</sup> Analysis of data from earlier stages of our research that included site inspections of AVL facilities and interviews with judicial officers, identified respect and voice as the most critical aspects of the procedural justice elements that warranted further investigation, along with rapport. Accordingly, this research focused on those three elements.

### 1.1.1 Respect in court use of AVLs

The extent to which a participant is treated with respect and dignity throughout the court process is a key indicator of procedural justice. Our research design was based on the assumption that court design can have a significant role in conveying respect and dignity,<sup>30</sup> and that an ideal courtroom environment is one that is respectful of participants in symbolic, as well as spatial,

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22 Tom R Tyler, 'Procedural Justice and the Courts' [2007] 44 *Court Review: The Journal of the American Judges Association* 26.

23 Eg John Short, Ederyn Williams and Bruce Christie, *The Social Psychology of Telecommunications* (Wiley 1976); Carrie Heeter, 'Being There: The Subjective Experience of Presence' [1992] 1 *Presence: Teleoperators and Virtual Environments* 262; Ronald E Rice, 'Media Appropriateness: Using Social Presence Theory to Compare Traditional and New Organisational Media' [1993] 19 *Human Communication Research* 451; Charlotte N Gunawardena, 'Social Presence Theory and Implications for Interaction and Collaborative Learning in Computer Conferences' [1995] 1 *International Journal of Educational Telecommunications* 147; Matthew Lombard and Theresa Ditton 'At the Heart of It All: The Concept of Presence' [1997] 3 *Journal of Computer Mediated Communication* JCMC321.

24 Jane Goodman-Delahunty, Natalie Martschuk and Mandeep K Dhama 'Interviewing High Value Detainees: Securing Cooperation and Disclosures' [2014] 28 *Applied Cognitive Psychology* 883.

25 Jonathan P Vallano and Nadja Schreiber Compo, 'A Comfortable Witness Is a Good Witness: Rapport-Building and Susceptibility to Misinformation in an Investigative Mock-Crime Interview' [2011] 25 *Applied Cognitive Psychology* 960; Jonathan P Vallano and Nadja Schreiber Compo, 'Rapport-Building With Cooperative Witnesses and Criminal Suspects: A Theoretical and Empirical Review' [2015] 21 *Psychology, Public Policy, and Law* 85.

26 Eg Vallano and Schreiber Compo (n 24); Goodman-Delahunty, Martschuk and Dhama (n 23); Jonathan P Vallano and others, 'Rapport-building during Witness and Suspect Interviews: A Survey of Law Enforcement' [2015] 29 *Applied Cognitive Psychology* 369.

27 Peter Deakin, 'Examination in Chief' (NSW Bar Practice Course, 2011) <[https://nswbar.asn.au/docs/professional/prof\\_dev/BPC/course\\_files/Examination\\_in\\_Chief\\_-\\_Deakin\\_QC\\_updated.pdf](https://nswbar.asn.au/docs/professional/prof_dev/BPC/course_files/Examination_in_Chief_-_Deakin_QC_updated.pdf)> accessed 05 July 2024; Stephen Owen-Conway, 'How to Cross-examine a Witness in an Australian Court' (3 March 2014) <[https://svensonbarristers.com.au/wp-content/uploads/2017/07/how\\_to\\_crossexamine\\_a\\_witness\\_in\\_an\\_australian\\_court\\_sample.pdf](https://svensonbarristers.com.au/wp-content/uploads/2017/07/how_to_crossexamine_a_witness_in_an_australian_court_sample.pdf)> accessed 28 December 2023; Susan Rutberg, 'Conversational Cross-examination' [2005] 29 *American Journal of Trial Advocacy* 353.

28 Goodman-Delahunty, Martschuk and Dhama (n 23) 885.

29 Tyler (n 21) 30–31.

30 Harold Garfinkel, 'Conditions of Successful Degradation Ceremonies' [1956] 61 *American Journal of Sociology* 420.

terms.<sup>31</sup> In other words, it should convey respect for the nature of the proceedings and of the participants' tasks, as well as for the individual. The research design was further informed by architectural theories concerning the impact of the nature of the physical environment on the wellbeing and psycho-social comfort of occupants,<sup>32</sup> and its role in cueing appropriate behaviour for social encounters.<sup>33</sup> Some support for the enhancing effect of a comfortable physical environment emerged in a study that investigated the effectiveness of coercive versus noncoercive interview strategies in police interviews.<sup>34</sup>

Persons appearing in a proceeding conducted in a physical courtroom experience a journey to that space, and features of the space itself, that are designed to convey certain impressions, and create certain effects. The formality of traditional courtroom design is intended, in part, to engender respect for the court,<sup>35</sup> and a sense that participants in courtroom proceedings are to be accorded dignity and respect.<sup>36</sup> Interviews and site inspections conducted in prior stages of this research project revealed that there are fewer opportunities for this to occur when an individual participates in court proceedings via AVL.<sup>37</sup> In previous stages of the research, we found that witnesses encountered great variation in the types of environments when testifying by AVL.<sup>38</sup> Site visits revealed that the 'typical' remote witness room was a small, bland, and anonymous space. While some remote spaces were purpose-built, such as those for child witnesses, some others were multi-purposes spaces, often also used to store other equipment or furniture, creating a crowded effect. Most remote spaces lacked natural light or external views, with internal lighting that was cold and glary. The remote participant was often positioned extremely close to the technology ('eyeballed'), which itself was often poorly integrated into the built fabric of the room.<sup>39</sup>

### 1.1.2 Voice in court use of AVLs

The design of the experimental conditions for the interventions in this study adopted Tyler's conception of voice that gives participants the opportunity 'to tell their side of the story in their own words'.<sup>40</sup> This incorporates the ability to convey their position through emotions, demeanour, and nonverbal communication.<sup>41</sup> This approach drew on the concept of social presence, or 'the degree to which a medium is perceived as conveying the presence of the communicating participants'.<sup>42</sup> Assessment of the degree of social presence is not confined to the words spoken, but also encompasses the context of the communication, including nonverbal and verbal cues.<sup>43</sup> A high degree of social presence is theorised to achieve a level of engagement that will enable participants to effectively collaborate or work together.<sup>44</sup> Wainfan and Davis identified strategies that can be used to assist AVL participants to achieve an appropriate level of social engagement, via preparation and support, introductions to other participants, and the capacity to interact or receive feedback.<sup>45</sup>

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31 Rowden (n 10); Emma Rowden, 'Distributed Courts and Legitimacy: What do we lose when we lose the courthouse?' [2018] 14 *Law, Culture and the Humanities* 263.

32 Esther M Sternberg, *Healing Spaces: The Science of Place and Well-Being* (Harvard University Press 2009).

33 Amos Rapoport, *The Meaning of the Built Environment: A Non-Verbal Approach* (Sage 1982); Rowden (n 10).

34 Goodman-Delahunty, Martschuk and Dhami (n 23).

35 Linda Mulcahy, 'An Unbearable Lightness of Being? Shifts towards the Virtual Trial' [2008] 25 *Journal of Law and Society* 464.

36 Rowden (n 10).

37 Rowden (n 10).

38 Rowden and others (n 3).

39 Rowden (n 10); *ibid.*

40 Tyler (n 21) 30.

41 Rowden (n 10).

42 Rice (n 22) 476. See also Short, Williams and Christie (n 22); Heeter (n 22); Gunawardena (n 22); Lombard and Ditton (n 22).

43 Richard L Daft and Robert H Lengel, 'Organizational Information Requirements, Media Richness and Structural Design' [1986] 32 *Management Science* 554; Rice (n 22).

44 Gunawardena (n 22).

45 Lynne Wainfan and Paul K Davis, *Challenges in virtual Collaboration: Videoconferencing, Audioconferencing, and Computer-Mediated Communications* (Rand Corporation 2004).

A third concept theorised as useful in assessing the quality of a communication medium is media richness:

The extent to which media are able to bridge different frames of reference, make issues less ambiguous, or provide opportunities for learning in a given time interval, based on the medium's capacity for immediate feedback, the number of cues and senses involved, personalization, and language variety.<sup>46</sup>

Rice contends that the richness of the medium should be matched to the task to achieve more effective communication and better performance.<sup>47</sup> The degree of perceived media richness is potentially influenced by image size and quality,<sup>48</sup> capacity for achieving eye contact,<sup>49</sup> and the nature of the views (or camera perspective) of each other available to the participants.<sup>50</sup> Equally important are audio quality and responsiveness,<sup>51</sup> the ability to detect non-verbal cues and use the resulting feedback to adjust performance,<sup>52</sup> and the capacity to share documents.<sup>53</sup>

Some support for the importance of adequate quality of AVL exists in a series of experimental studies in which the sound quality of recordings of researchers giving a conference talk or a radio interview was manipulated.<sup>54</sup> Although the content was identical, participants perceived the speakers and the content of their speech in the poor audio quality conditions less favourably than in the high audio quality conditions.

Findings from earlier stages of the research identified deficiencies in the quality and configuration of the technology used for AVLs in Australian courts, and in the level of support provided to remote participants, that could impact adversely on the voice of a remote participant. Site visits and interviews identified problems with poor audio-visual quality, restricted views, loss of behavioural cues, and unsupportive environments, such that most court AVL configurations lacked the degree of richness required for the task, and often were perceived by stakeholders to not adequately facilitate the necessary level of engagement between the remote participant and those in the courtroom.<sup>55</sup>

Site visits and interview data revealed that AVL often provided less than optimal views at both ends of the link. In some cases, this was due to the poor quality of the technology, in particular low-resolution screens, but often it appeared to result from the way in which screen and camera positions were configured. Remote participants were often framed so that their face took up a large proportion of the screen and was badly lit so that it was partly shaded.<sup>56</sup> Remote participants were generally provided with only two screen shots of the courtroom — the judge's bench and counsel table — displayed to them on adjacent screens. This composition, combined with the position of the camera filming them, could result in a situation where the remote participant appeared to be switching their gaze back and forth between two images facing them, rather than directly addressing persons in the courtroom.<sup>57</sup> A typical court AVL often provided poor sound reinforcement and compromised speech intelligibility; sound and vision from the remote participant were often not co-located in the courtroom.<sup>58</sup>

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46 Rice (n 22) 452–53.

47 *ibid.*

48 Cheryl Campanella Bracken, 'Presence and Image Quality: The Case of High-Definition Television' [2005] 7 *Media Psychology* 191.

49 Jeremy N Bailenson and others, 'Equilibrium Theory Revisited: Mutual Gaze and Personal Space in Virtual Environments' [2001] 10 *Presence: Teleoperators and Virtual Environments* 583.

50 G Daniel Lassiter and others, 'Accountability and the Camera Perspective Bias in Videotaped Confessions' [2001] 1 *Analyses of Social Issues and Public Policy* 53.

51 Lombard and Ditton (n 22); Wainfan and Davis (n 43).

52 Elizabeth A Boyle, Anne H Anderson and Alison Newlands, 'The Effects of Visibility on Dialogue and Performance in a Cooperative Problem Solving Task' [1994] 37 *Language and Speech* 1.

53 Wainfan and Davis (n 43).

54 Eryn J Newman and Norbert Schwarz, 'Good Sound, Good Research: How The Audio Quality of Talks and Interviews Influences Perceptions of the Researcher and the Research' [2018] 40 *Science Communication* 246.

55 Rowden and others (n 3).

56 *ibid.*

57 *ibid.*

58 *ibid.*

In interviews conducted with judicial officers (judges and magistrates), expert witnesses, court and support staff and lawyers, a range of concerns about the impact of these restricted views on the capacity of witnesses to give and receive non-verbal communication were identified by stakeholders.<sup>59</sup> Many expert witnesses stated that when giving evidence by AVL, they were restricted in their ability to use body language, such as gesture, to communicate with those in the courtroom. Similarly, they reported limited ability to read the body language of those in the courtroom in order to pick up cues as to how their evidence was received, for example, whether the jury was following them.<sup>60</sup> The ability of those in the courtroom to accurately gauge the emotional state of a remote witness (for example, to discern whether they were angry or distressed) was perceived to be impaired by the views available on AVL. The inability to achieve eye contact or even, in some cases, to have a clear view of the person at the other end of the AVL, was perceived to impede communication.<sup>61</sup>

Interviews and site inspections confirmed that a witness or defendant who appears remotely experiences the journey to the courtroom differently from those appearing in the physical courtroom.<sup>62</sup> The remote witness may not have a lengthy waiting period outside the courtroom door. However, they often lacked an equivalent opportunity to that provided to the witness in person to enter the courtroom, walk towards and take their place in the witness box, and to look around, observe and identify other courtroom participants before beginning their evidence. Although some courts do make an effort to orient the remote witness and introduce them to the physical courtroom, we identified numerous instances of remote witnesses ‘beamed live’ into a courtroom with little opportunity to prepare.<sup>63</sup> In the case of defendants appearing via AVL, McKay found little opportunity was provided for orientation and introduction to the courtroom proceeding.<sup>64</sup>

### 1.1.3 Building rapport in court AVLs

Concerns have been expressed by lawyers and members of the judiciary that the use of AVL may adversely impact the capacity of a lawyer located in the physical courtroom to build rapport with a witness giving evidence by AVL.<sup>65</sup> Relevant examples from our interviews included concerns that difficulty in adequately perceiving body language or emotional distress of a witness might make it more difficult for those in the courtroom to adjust their communication appropriately in order to develop or maintain rapport, or to develop interest in or to remain attentive to the witness’s evidence.

Previous studies have repeatedly shown that rapport increases witnesses’ (and suspects’) willingness to provide more detailed and accurate information.<sup>66</sup> Lawyers are specifically encouraged to establish rapport with witnesses to increase the likelihood of receiving helpful evidence.<sup>67</sup> This includes information about, and administration of, the court, and is particularly important for witnesses appearing in court for the first time.<sup>68</sup> Similarly, rapport-building has been shown to increase the amount of information and accuracy of detail provided by witnesses in interviews conducted via AVL.<sup>69</sup>

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59 See Rowden (n 10).

60 *ibid.* See also Wallace (n 10).

61 Rowden (n 10).

62 Mulcahy (n 34); Rowden (n 10).

63 Rowden (n 10).

64 McKay (n 1).

65 J H Phillips, ‘Casting a Girdle Round the Earth’ [1999] 73 *Australian Law Journal* 545; Suzie Forell, Meg Laufer and Erol Digiusto, ‘Legal Assistance by Video Conferencing: What is known?’ [2011] 15 *Justice Issues Paper* 1; Gary Ulman, ‘Proposal to amend the Evidence (Audio and Audio Visual Links) Act 1998 to Create a Presumption for First Appearance Bail Proceedings’ (Letter from Law and Justice Foundation to NSW Department of Justice, 06 July 2016) <<https://www.lawsociety.com.au/sites/default/files/2018-06/Letter%20to%20Attorney%20General%20-%20Expanding%20Audio%20Visual%20Links%20%28AVL%29%20-%20Proposals%20to%20amend%20the%20Evidence%20%28Audio%20and%20Audio%20Visual%20Links%29%20Act%201998%20%28the%20Act%29%20-%2030%20April%202018.pdf>> accessed 28 December 2023.

66 Eg Ruthberg (n 26); Vallano and Schreiber Compo (n 24); Goodman-Delahunty, Martschuk and Dhami (n 23); Owen-Conway (n 26); Vallano and others (n 25).

67 Deakin (n 26).

68 *Ibid.*

69 Cassandre D Larivière, Quintan Crough and Joseph Eastwood, ‘The Effects of Rapport Building on Information Disclosure in Virtual Interviews’ [2022] 38 *Journal of Police and Criminal Psychology* 452.

Extending this to virtual environments, a study showed that compared to in-person interviews, individuals interviewed online reported lower levels of rapport-related features, including attentiveness and respect.<sup>70</sup> However, the impact of poor design and sub-standard technology as opposed to rapport-building strategies alone on the capacity to achieve effective communication over an AVL have not yet been investigated. The present study aimed to extend previous research by investigating the combination of environment and process on perceived rapport.

## 1.2 THE PRESENT STUDY

Our research examined the physical environment and technology, and the process (i.e., social, relational interactions and the supporting processes). The study had two aims. The first aim was to test the enhanced physical and technological conditions (i.e., 'good' quality equipment, materials and finishes in a spatial configuration that was comfortable, supportive and appropriately dignified), designed to facilitate a high degree of social presence and a degree of media richness matched to the task of participating by AVL. The second aim was to investigate the effectiveness of the enhanced information and support provided to the individual participating in court by AVL. The hypotheses were as follows:

1. Compared to standard physical and technological conditions, interviewees experiencing AVL participation in enhanced physical and technological conditions (i.e., enhanced environment) would provide higher ratings of (a) perceived respect, (b) perceived voice, and (c) perceived rapport.
2. Compared to standard conditions of information and support, interviewees experiencing AVL participation in conditions of enhanced information and support (i.e., enhanced process) would provide higher ratings of (a) perceived respect, (b) perceived voice, and (c) perceived rapport.
3. The combination of the enhanced environment and the enhanced process would lead to the highest ratings of (a) perceived respect, (b) perceived voice, and (c) perceived rapport.

## 2 METHOD

### 2.1 PARTICIPANTS

Participants were 64 'lay witnesses' and 21 forensic expert witnesses. Lay witnesses (68.8 per cent men, 31.3 per cent women) aged between 21 and 69 years<sup>71</sup> were recruited by local newspaper advertisements. The aim of this selection process was to achieve a reasonably diverse group of witnesses, who might be expected to mirror the Australian community. However, the fact that the experiment was held during working hours and that participation depended on interested individuals reading and responding to the invitation in newspapers mitigated against that outcome. The majority were students (68.8 per cent), 25.1 per cent were employed or self-employed, and 6.3 per cent were retired or responsible for in-home duties. Forty-eight per cent had finished high school or less, 39.1 per cent reported a university degree, and 12.5 per cent a trade certificate or a diploma. Each lay participant was paid \$50. The expert witnesses were all individuals employed in various forensic science disciplines by the Australian Federal Police, the Victorian Police Forensic Department and the Victorian Institute of Forensic Medicine. They were selected in consultation with those agencies and the distribution of disciplinary expertise was designed to be broadly representative of the types of expert forensic evidence that would be given in Australian courts in criminal cases. They were not paid for their participation time in the experiment. The study was granted ethical approval by the University of Canberra.

### 2.2 DESIGN

The experiment used a 2 × 2 between-participants design in which the first factor was remote witness technology (standard v. enhanced) and the second was relational process (standard v. enhanced). The baseline control condition involved a standard environment and standard process. The three experimental intervention conditions were: standard environment and enhanced process, enhanced environment and standard process, and enhanced environment

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<sup>70</sup> Katherine Hoogesteyn and others, 'Rapport Building: Online vs In-person Interviews' [2023] 20 *Journal of Investigative Psychology and Offender Profiling* 162.

<sup>71</sup>  $M = 29.03$ ,  $SD = 13.10$ .



and enhanced process. Expert and lay witnesses were randomly assigned to one of the four experimental conditions. The main study took place at a courtroom and associated spaces made available to the research team by the County Court of Victoria, Melbourne.

## 2.3 PROCEDURE

The study consisted of an encounter over AVL between a prosecutor and a witness (lay/expert). Each lay witness viewed a short extract from a film showing a shooting incident and was escorted to a remote witness room from which the witness was individually questioned by an interviewer located in the courtroom (the prosecutor) about what they had seen on the film. A standard set of questions for each interview was used. Forensic expert witnesses were questioned using a standardised approach to guide them through a pre-prepared witness statement based on their forensic speciality, using a case devised by each witness. Each interview lasted an average of seven minutes.

### 2.3.1 Pilot study

The dependent measures were tested and validated in a pilot study, using a mock courtroom located in the Faculty of Law at the University of Canberra, Australia. Twelve student participants were interviewed one at a time from the courtroom via AVL about their observations of a short extract from a film. Participants were debriefed about their experience in focus groups. Feedback from the analysis of the survey and focus group was used to refine the survey instruments and the experimental protocols.

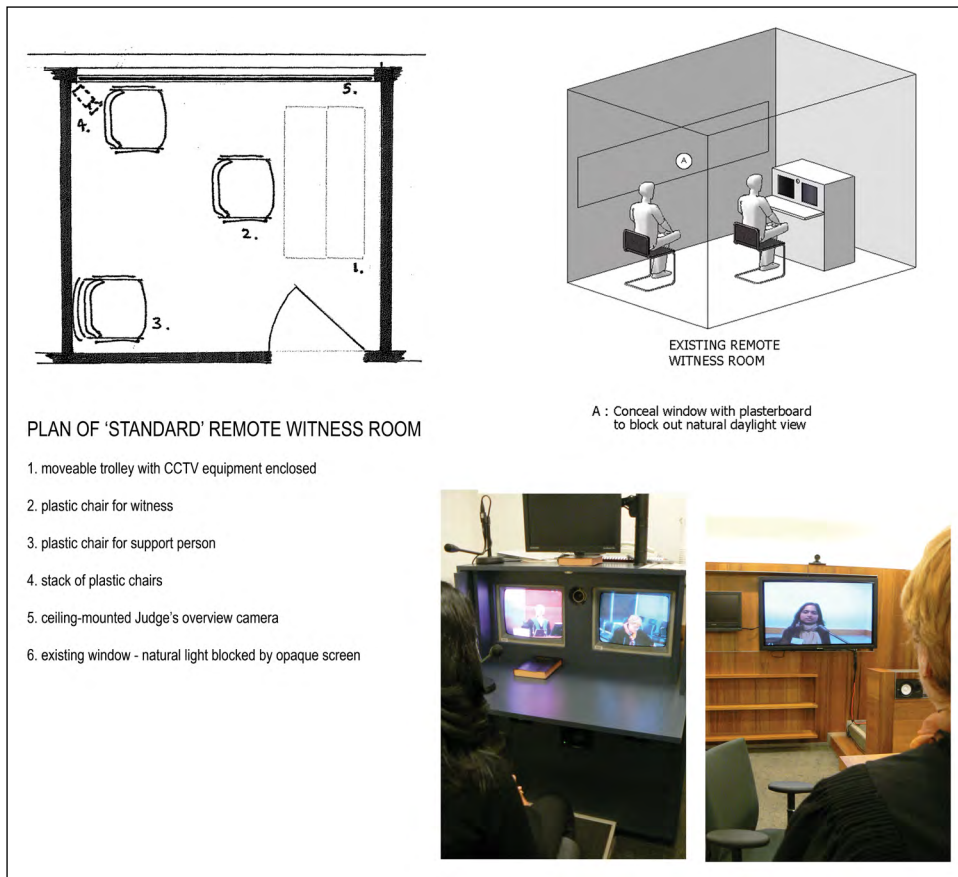
### 2.3.2 Standard and enhanced environment

The *environment* for the purposes of the experiment was that of the room from which the witness was linked to the courtroom by AVL (the remote space), incorporating the technology, furniture, layout and lighting. The *standard environment condition* was based on that of an existing remote witness room in the court used for the experiment: a small space with blank walls, a plastic chair, two older-style display screens positioned side-by-side (displaying views of the judge and the prosecutor, respectively) with a camera positioned between them to convey the image of the witness to the courtroom, and a large microphone placed directly in front of the witness. To replicate the enclosed, often cluttered feel that had been identified by the research team as a common feature of remote spaces that we had observed in field visits to Australian courts, we placed a stack of chairs in one corner of the room and blocked the natural light from a window.

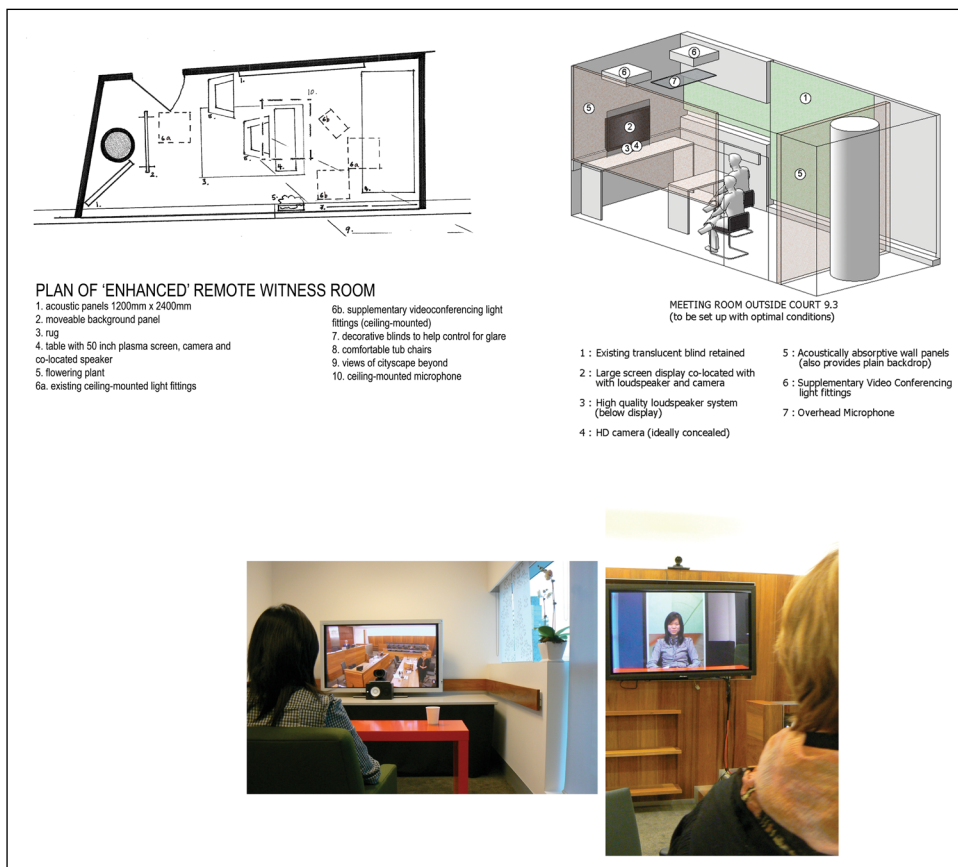
The team created the *enhanced environment condition* in a larger space, incorporating AVL technology of superior quality to that in the standard condition, consisting of a wide flat 50-inch display screen placed at eye level for the witness which was designed to provide them with clearer and more life-like views of the courtroom participants than in the standard configuration. The camera filming the witness was positioned slightly above the screen (to better simulate eye contact) and the witness's speech was captured using a highly sensitive microphone mounted in the ceiling. Careful attention was paid to the room's acoustics, the electro-acoustics, and the configuration of the video system and communication protocols, to enhance the quality of sound and vision. Features of the room design included a comfortable chair for the witness and a table on which they could place notes or documents. The natural lighting from the window was not obstructed, and drapes were used to reduce glare, creating conditions that allowed the witness's face to appear in its natural colour. [Table 1](#) outlines the specific differences between the two rooms in greater detail, illustrated in [Figures 1](#) and [2](#).

**Table 1** Standard vs. Enhanced Environment.

STANDARD REMOTE WITNESS ROOM	ENHANCED REMOTE WITNESS ROOM
Analogue composite video camera system Utilising CCTV technology	High resolution, digital camera system High quality/bandwidth, video conferencing codec
Close proximity monitors, camera placement (limits eye-to-eye contact) Small analogue cathode ray tube (CRT) display monitors Diffuse fluorescent lighting	Remote control of camera pan tilt and zoom to optimise framing Large format, high resolution, 50-inch plasma display at comfortable viewing distance Supplementary ceiling mounted lighting fixture to improve colour rendering
Gooseneck microphone with large variation in transmitted speech levels Inadequate sound reinforcement, poor frequency response	Perspex, ceiling-mounted, quarter space boundary microphone with improved speech reinforcement Acoustically absorptive wall panels to support occupant comfort and speech intelligibility



**Figure 1** Standard remote witness room: 3-D view of design for standard room; plan of standard room (3D model © ICE Design; plan and photographs showing the remote participant in their room, and how they were seen in the courtroom © Emma Rowden).



**Figure 2** Enhanced remote witness room: 3-D view of design for enhanced room; plan of 'enhanced room' (3D model © ICE Design; plan and photographs showing the remote participant in their room, and how they were seen in the courtroom © Emma Rowden).

### 2.3.3 Standard and enhanced relational process

The process to which the witness was subject varied to create *standard* and *enhanced* relational process conditions. *Process* in this context referred to the level of information and support provided to the witness in two stages: (a) preparation for evidence; and (b) introduction to the courtroom. The quality of the human interactions was varied with respect to warmth, information and opportunity for feedback, as described in Table 2.

ELEMENT	STANDARD CONDITION	ENHANCED CONDITION
Warmth	Unfriendly	Friendly
Information	Minimal Information	Very Informative
Feedback	No check for understanding/questions	Check for understanding/questions

**Table 2** Relational Process Conditions.

In both the standard and enhanced conditions, a witness support officer escorted the witness to the room in which they were to view the film, from that room to the remote witness room from which they were interviewed by AVL, and administered the survey following their interview. In the *standard process condition* the witness support officer provided minimal information about the procedure they were to undertake, the available facilities (e.g., drinking water, toilets). They addressed the witnesses courteously, but briefly, and did not provide an opportunity for the witness to ask questions (e.g., to clarify their understanding of what would occur or what was required of them). The witness was not introduced to the courtroom, nor oriented to the courtroom before the interview commenced. At the conclusion of the interview, the AVL was simply terminated.

In the *enhanced process condition*, the witness support officer greeted the witness by name, in a friendly tone, provided a more detailed explanation of the process and an opportunity for the witness to ask questions. The witness was welcomed by the remote court support officer, introduced to the remote witness room and its features, welcomed by the judge when the AVL commenced and given a short introduction by the judge’s associate to the courtroom and the other participants, using a series of different camera views. At the conclusion of their interview, they were thanked by the judge before the AVL was terminated.

In all experimental conditions the witness support officer asked the witness to complete the survey after the interview, after which each witness was debriefed.

## 2.4 DEPENDENT MEASURES

Witnesses completed a survey that included questions about *perceived respect* measured via perceptions of the design of the witness room (17 items,<sup>72</sup> e.g., ‘the room was welcoming’), *perceived voice* (16 items,<sup>73</sup> e.g., ‘I was able to express myself in my own words’) and *perceived rapport* with the Interviewer (10 items,<sup>74</sup> e.g., ‘the interviewer and I developed a good rapport’). Participants answered to each item on a 6-point rating scale from 1 = *strongly agree* to 6 = *strongly disagree*.

## 2.5 ANALYSES

Correlational analyses were conducted to assess the association between the dependent and independent variables. The point biserial correlation  $r_{pb}$  for at least one binary variable is interpreted as follows:  $r_{pb} = .10$  indicates a small effect,  $r_{pb} = .24$  a medium effect and  $r_{pb} = .37$  a large effect.<sup>75</sup> The Pearson correlation of  $r = .11$  indicates a small effect,  $r_{pb} = .24$  a medium effect and  $r_{pb} = .44$  a large effect.<sup>76</sup>

Mixed effects models were conducted to assess whether the manipulation of the process and the environment affected perceptions of respect, voice, and rapport. Mixed effects models were preferred to standard analysis of variance to take into account variations associated with the order in which witnesses participated, because witnesses took part in live performances rather than being exposed to a standard experimental intervention (such as a film). For example, it is possible that the prosecutor became more convincing over time (a learning effect), or less acute after lunch (a time-of-day effect), the two prosecutors who played the part varied in their impact on witnesses, or that they reacted differently to professional witnesses versus lay witnesses.

<sup>72</sup> Cronbach’s  $\alpha = .87$ .

<sup>73</sup> Cronbach’s  $\alpha = .81$ .

<sup>74</sup> Cronbach’s  $\alpha = .74$ .

<sup>75</sup> Jacob Cohen, *Statistical Power Analysis for the Behavioral Sciences* (2<sup>nd</sup> edn, NJ Lawrence Erlbaum Associates 1988).

<sup>76</sup> *ibid.*

Overall, participants reported a moderate to positive view of the procedure and the environment. Table 3 shows the means and standard deviations of the dependent measures and the intercorrelations between the dependent and the independent measures. Correlational analyses revealed that witness type was not associated with any of the dependent measures. The enhanced environment was associated with a more positive perception of respect than the standard environment.<sup>77</sup> The enhanced relational process was associated with a more positive perception of rapport,<sup>78</sup> and of voice,<sup>79</sup> than the standard relational process.

	<i>M</i>	<i>SD</i>	1	2	3	4	5
1. Witness type: Lay vs. Expert	-	-	-				
2. Environment: Standard vs. Enhanced	-	-	.075	-			
3. Process: Standard vs. Enhanced	-	-	.062	.082	-		
4. Perceived Rapport	4.79	0.61	-.120	.124	<b>.479</b>	-	
5. Perceived Voice	4.51	0.68	-.186	-.004	<b>.350</b>	<b>.562</b>	-
6. Perceived Respect	4.18	0.82	-.077	<b>.614</b>	.136	<b>.467</b>	<b>.396</b>

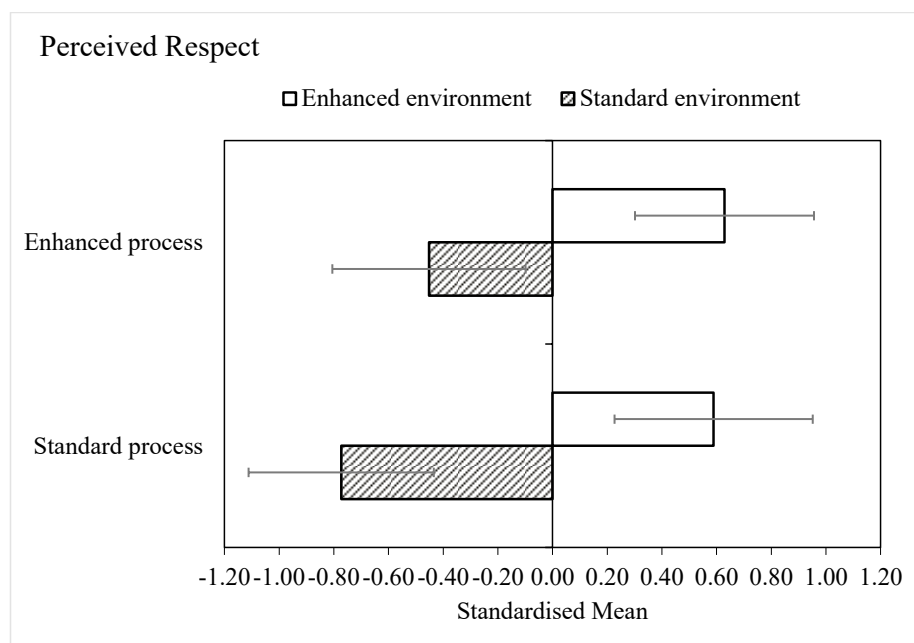
**Table 3** Intercorrelations between the Independent and Dependent Variables.

Note. 1–3 are point-biserial correlations, 4–6 are Pearson correlations.

Significant correlations ( $p \leq .001$ ) are in bold.

3.1 PERCEIVED RESPECT THROUGH THE DESIGN OF THE WITNESS ROOM

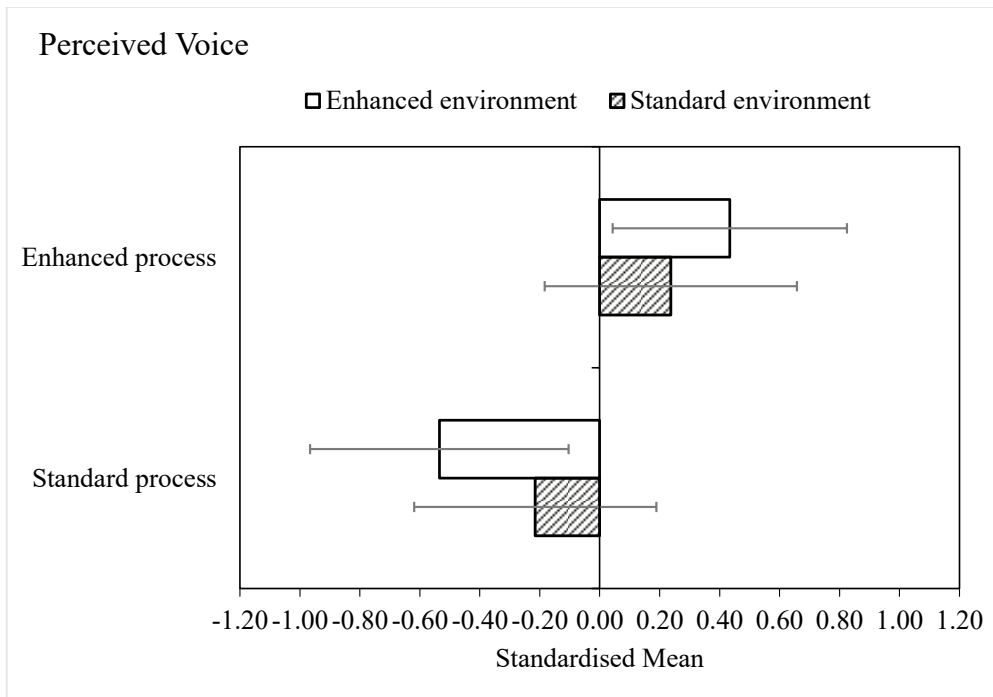
A mixed effects model revealed that the environment was associated with the perceived respect,<sup>80</sup> such that participants in the enhanced environment reported a greater sense of respect compared to those in the standard environment. By contrast, the process did not influence perceptions of respect,<sup>81</sup> neither did the interaction between the environment and the process.<sup>82</sup> In other words, an enhanced physical environment increased participants' perceived respect, while enhanced information and support did not have the same effect. Figure 3 shows mean standardised values for each of the experimental groups. The random effect for nested groups was not significant.<sup>83</sup>



**Figure 3** Perceived respect through the design of the witness room. Bar graphs are 95 per cent confidence intervals.

77  $r_{pb} = .61, p < .001$ .  
 78  $r_{pb} = .48, p < .001$ .  
 79  $r_{pb} = .35, p = .001$ .  
 80  $F(1, 63.5) = 56.07, p < .001$ .  
 81  $F(1, 62.5) = 1.23, p = .271$ .  
 82  $F(1, 64.5) = 0.74, p = .394$ .  
 83  $p > .10$ .

A mixed effects model revealed that the relational process was associated with perceived voice,<sup>84</sup> such that the enhanced information and support increased perceived voice, compared to the standard relational process. The environment did not influence perceptions of voice.<sup>85</sup> The interaction between the environment and the relational process was not significant.<sup>86</sup> However, a closer inspection of the interaction between the environment and the relational process indicated that the effect was concentrated in the enhanced environment condition,<sup>87</sup> but not the standard condition<sup>88</sup> (see Figure 4). In other words, while the enhanced relational process had no effect in the standard environment condition, witnesses perceived more positive treatment in the enhanced environment condition. The random effect for nested groups was not significant.<sup>89</sup>



**Figure 4** Perceived voice. Bar graphs are 95 per cent confidence intervals.

### 3.3 PERCEIVED RAPPORT WITH THE INTERVIEWER

Similar to the findings above, the relational process was associated with perceived rapport with the interviewer.<sup>90</sup> Specifically, the enhanced relational process facilitated rapport between the interviewer and the witness, compared to the standard relational process. The environment did not influence perceptions of rapport,<sup>91</sup> and the interaction between the environment and the relational process was not significant.<sup>92</sup> In other words, relational process had the same effect in the standard versus the enhanced environment conditions, as shown in Figure 5. The random effect for nested groups was not significant.<sup>93</sup>

<sup>84</sup>  $F(1, 61.4) = 13.91, p < .001$ .

<sup>85</sup>  $F(1, 62.4) = 0.11, p = .747$ .

<sup>86</sup>  $F(1, 63.4) = 1.83, p = .181$ .

<sup>87</sup>  $t(62.7) = -3.60, p = .001$ .

<sup>88</sup>  $t(63.4) = 1.35, p = .181$ .

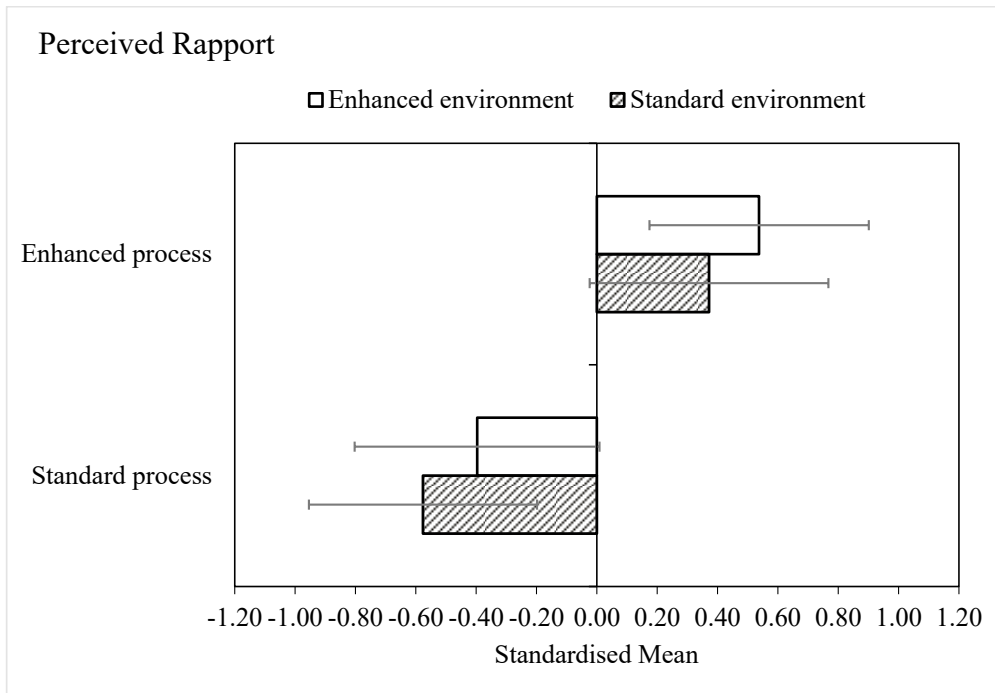
<sup>89</sup>  $p > .10$ .

<sup>90</sup>  $F(1, 62.5) = 24.57, p < .001$ .

<sup>91</sup>  $F(1, 63.9) = 0.83, p = .366$ .

<sup>92</sup>  $F(1, 64.8) = 0.00, p = .973$ .

<sup>93</sup>  $p > .10$ .



**Figure 5** Perceived rapport with the interviewer. Bar graphs are 95 per cent confidence intervals.

## 4 DISCUSSION

### 4.1 KEY FINDINGS

An enhanced design and technology in the witness room increased perceived respect. Similarly, a more positive and informative treatment of the witnesses was associated with higher ratings of perceived voice and rapport with the interviewer. Finally, perceived voice and rapport received the highest ratings when both the environment and process were enhanced.

The findings confirmed Hypothesis 1a that witnesses reported greater levels of satisfaction with the enhanced environment condition. However, an enhanced environment did not influence perceived voice (Hypothesis 1b) or rapport (Hypothesis 1c). These findings provided some support for architectural theories that physical environment influences well-being and psycho-social comfort,<sup>94</sup> and that design engenders respect.<sup>95</sup>

Compared to the standard relational process, enhancing the information and support improved lay and expert witnesses' reported voice, confirming Hypothesis 2b. These findings were in line with theoretical notions that a high degree of social presence,<sup>96</sup> preparation, support and appropriate introduction<sup>97</sup> are likely to achieve increased engagement. Further, the study supported Hypothesis 2c that participants who experienced AVL participation in conditions of enhanced information and support provided higher ratings of rapport with the interviewer on the other side of the AVL. However, enhanced information and support was not associated with perceived respect (Hypothesis 2a).

We hypothesised that the combination of the enhanced environment and the enhanced relational process would lead to highest ratings of 3a perceived respect; 3b perceived voice; and 3c perceived rapport. According to Rice, the richness of used medium needs to be matched to the task and experience to improve communication and performance.<sup>98</sup> The findings showed that the combination of an enhanced relational process that matched the enhanced environment made the most difference in participants' perceptions of their ability to voice (confirming Hypothesis 3b). In other words, interviewees' perceived voice was higher in the enhanced relational process than the standard relational process when the environment was enhanced.

<sup>94</sup> Sternberg (n 31).

<sup>95</sup> Mulcahy (n 34).

<sup>96</sup> Gunawardena (n 22).

<sup>97</sup> Wainfan and Davis (n 43).

<sup>98</sup> Rice (n 22).

Similarly, the findings supported hypothesis 3c in that perceived rapport was highest in the experimental condition in which both the process and the environment were enhanced. The findings, in respect of rapport, are important because participants received the enhanced information and support from a person on-site who was different from the interviewer who appeared via AVL. These findings, along with those on perceived ability of voice suggested that an enhanced treatment, accompanied by improved technology and a supporting physical environment, improved witnesses' experience of appearing by AVL. The findings did not support Hypothesis 3a that an enhanced process and the combination of an enhanced process and enhanced environment increased perceived respect. The lack of interaction effect underscored that the effects of physical environment on respect were independent of the effects of relational variables and vice versa. Overall, these findings strengthen the importance of improving both physical and relational features of AVL by showing that physical environment features affect respect and dignity, and relational features affect voice and rapport, with a possible improvement of trust.

## 4.2 LIMITATIONS

A number of limitations were inherent in the experimental design. Firstly, the data are self-reported perceptions of the participants. It is possible that those observing the experiment would have made different assessments of quality of the communication between the witness and the interviewer, and of the quality of the technology and its supporting environment. Yet it is the perceived accessibility to justice or the perceived fairness that are associated with legal confidence and satisfaction with legal outcomes.<sup>99</sup>

Secondly, answering questions about one's recollection of observing a scene from a film is only an approximation to the task of giving evidence about own experiences. In a real case, a witness might be questioned for considerably longer than the seven minutes, on average, that the witnesses in this study experienced. It is possible that the variation in conditions experienced by different witnesses may have a different impact when a witness testifies for a longer period, or has a greater emotional involvement with the events that they are describing. Similarly, in a real case, a witness would be open to cross-examination, which, in itself, may have considerable impact on their view of their AVL experience.

As noted previously, our participant group of lay witnesses is unlikely to be typical of the broad range of individuals in the Australian community who might be called to give evidence in courts. For example, our student participants (younger and more highly educated) might be hypothesised to have different attitudes towards media and technology, than older participants—something that has been explored by members of the research team in other work.<sup>100</sup>

The incorporation of both technological and design elements in the environmental condition that were manipulated made it impossible to isolate the effect of the technology enhancements from the architectural enhancements, or the independent impact of separate aspects of each of the manipulations. For example, the study did not investigate the differential impact of improving the quality of the audio or image quality, or improving lighting, as opposed to acoustics. Further, the study did not investigate the impact of internet access or digital capability on witnesses' perceptions of the trial process that would be relevant if people participated from private facilities.<sup>101</sup>

While acknowledging these limitations, a clear finding from these results is that the courts would benefit from improved environmental conditions under which a court AVL occurs and the level of support and information given to the remote participant. Our study showed that improvement of environment *and* support had a measurable impact on the two key aspects of perceived procedural justice of the AVL court encounter and on the perceived rapport between the witness and those questioning them from the physical courtroom.

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<sup>99</sup> Robert H Mnookin and Lewis Kornhauser, 'Bargaining in the Shadow of the Law: The Case of Divorce' [1979] 88 *Yale LJ* 950; Hazel Genn, *Judging Civil Justice* (Cambridge University Press 2010) 114; Denvir and Selvarajah (n 7).

<sup>100</sup> Meredith Rossner, David Tait and Jane Goodman-Delahunty, 'Students vs. Jurors: Responding to Enhanced Video Technology' [2014] 3 *Laws* 618.

<sup>101</sup> Eg Denvir and Selvarajah (n 7).

Several features of this study make our findings potentially highly significant for guiding policy and practice in relation to the use of AVL to take evidence in courts. This study provides the first empirical findings that improving the quality of AVL court technology and the supporting physical environment can have measurable impacts on the experience of remote court participants. It also breaks new ground in investigating the impact of providing improved relational support for those experiencing court by AVL, again demonstrating a significant, although not as marked, impact on two aspects of perceived procedural justice and rapport. These latter findings suggest that in the absence of funding to support expensive technology upgrades, enhancing the level of information and relational support provided to the remote court participant is a worthwhile endeavour.

While there appears to be an increasing imperative for courts to use AVL, there is a lack of a robust evidence base to inform decisions about the specifications, configuration and operation of the technology, its interaction with the physical environments in which it is situated, and the procedures to govern its operation. This study investigated ways in which these various components of the AVL court experience affect and interact with each other. In light of concerns that have been raised about the potential adverse impact on court participants appearing by AVL, it is important that decisions about these matters are made not only on the grounds of perceived efficiency gains, but also embody a concern for the quality of the experience. A procedural justice approach, and one that focused on the nature of the interaction between the remote court participant and those in the courtroom addressed this quality. What follows are some specific recommendations to improve the design and use of court AVLS by addressing the three aspects examined in the study – technology, environment and relational process – that were positively correlated with perceptions of procedural justice and the capacity to achieve rapport.

While we acknowledge that the pace of technological advancement means that any specifications in an article of this nature will necessarily be outdated in terms of what is currently available, it is our experience that courts, even in relatively affluent countries like Australia, are rarely able to afford the best quality AV technology that is currently available commercially. For that reason, along with the conditions of the COVID-19 pandemic that made AVL encounters a far more normalised feature of everyday life than when this data collection took place, we think there is value in making recommendations in general terms that could assist in designing and implementing AVLS in courts.

Our findings suggest that better results are achieved with the use of a high-definition display screen for the witness that attempts to provide as full and realistic a view of the other courtroom participants as possible. Camera and screen placement should aim to simulate eye contact. The audio quality should be such that there is good acoustic separation, co-location of image and sound, and appropriate levels of soundproofing in the remote location.

The design of the remote location and the way it presents to the courtroom should be carefully considered with an emphasis on removing any distractions, for either the remote participant or those viewing them from the courtroom. Careful attention should be paid to lighting, in particular of the face, and an appropriate background colour should be used for clarity of image. Comfortable seating should be provided for the remote participant and a place for documents or exhibits, if required.

The operation and management of AVL in court proceedings should be informed by an understanding of the importance of the cues provided to court participants by their physical surroundings and from their observations of the body language of others in that setting. There should be no assumption that participants appearing by AVL know what to do or how to behave in a courtroom and they should be provided with information and support appropriate to their needs and experience. The remote participant should be given an opportunity to test out and familiarise themselves with the equipment, together with a ‘virtual orientation’ and introduction to the courtroom.

We do not claim that it is possible to draw conclusive findings from this study about the impact of AVL on the fairness of court proceedings. No empirical research has investigated the impact of AVLS on the other components of procedural fairness, that is, neutrality and trustworthiness. A study by Diamond and others suggests scope for further research on the impact of AVL on



the neutrality of fact-finders and decision-makers.<sup>102</sup> Despite documented concerns about the court AVL experience noted above, there appears to be limited research on their impact on trustworthiness, either from the perception of court participants, or, more broadly, on public perceptions of the justice system and public trust and confidence in it.<sup>103</sup> Further research that attempts to disaggregate the effects of improvements in the technology from changes to the build environment (a limitation of our experimental design) could assist courts to better pinpoint where improvements might be made to greatest effect and could further assist courts to leverage maximum value from their investments in AVL technology. The impact of court use of AVL on respect is worthy of further research, as it seems in this context a somewhat amorphous concept.

Our study attempted to measure respect in architectural terms, which may not have captured all these various elements. It is possible that a study using indicators based on psycho-social terms may yield different results. Similarly, while these findings suggest that the nature of the AVL court encounter influences the capacity to build rapport between the remote participant and the questioner in the courtroom, there is considerable scope for further exploration of this question. The different contexts in which courtroom encounters can take place (e.g., examination-in-chief, cross-examination), differences in the types of proceedings (e.g., jury-trials, as opposed to judge alone trials), different types of participants (e.g., vulnerable witness, expert witness, defendant) or difficulties with the technology itself might all impact on the way rapport is conceived and the process by which it is developed. Further empirical research on this topic generally, and the use of AVL in courts specifically, is required.

The limited empirical research on the impact of court AVLS (evaluative or otherwise) is particularly striking, given that the introduction of AVLS amounts to a substantial departure from previous court practice. While our research may suggest some ways in which concerns about its use can be ameliorated, it is far from providing a complete response to the range of issues that have been identified about court use of AVLS. Many of those issues relate to concerns about the differential impact of court participation via AVL compared to participation from the physical courtroom. That was not the focus of our research, which began from a starting point that assumed the use of AVLS in court proceedings and looked, instead, to ways to improve them. Further investigation of the differences in the effects of this type of remote participation is desirable if courts are to identify, for example, the types of proceedings, or the types of participants, for which participation by AVL may be more or less appropriate.

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## COMPETING INTERESTS


The authors have no competing interests to declare.

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<sup>102</sup> Diamond and others (n 14).


<sup>103</sup> But see Denvir and Selvarajah (n 7).

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