

Virtually the Same? A Comparison Between In-Person and Virtual Mock Jury Deliberations

Krystia Reed¹, Valerie P. Hans², Vivian N. Rotenstein³, Peter McKendall⁴, Addison Rodriguez³,
Rebecca K. Helm⁵, and Valerie F. Reyna³

¹ Department of Psychology, University of Texas at El Paso

² Cornell Law School, Cornell University

³ Department of Psychology, Cornell University

⁴ Department of City and Regional Planning, Cornell University

⁵ Law School, University of Exeter



Objective: Courts have dramatically increased their use of virtual jury trials, but empirical research has yet to examine differences between in-person and virtual jury deliberations. **Hypotheses:** We tested competing hypotheses that in-person juries would be better (or worse) than virtual juries in terms of attention and engagement, deliberation, and diversity. **Method:** Community members ($N = 317$; 61% women; 86.1% White; mean age = 48.68 years) watched a videotaped trial involving an automobile accident and then deliberated either in person or virtually in 54 mock juries ($N_{\text{in person}} = 24$; $N_{\text{virtual}} = 30$). **Results:** In-person and virtual juries did not differ significantly across most outcomes. However, regarding attention and engagement, virtual juries reported expending greater cognitive effort ($d = 0.59$) than in-person juries. Regarding deliberation, in-person juries interrupted each other significantly more often than virtual juries ($d = 1.93$), and they discussed more topics than virtual juries ($d = 0.59$ – 1.02). Regarding diversity, virtual jurors were younger ($d = 0.55$), wealthier ($d = 0.66$), and more educated ($\phi = .14$) than in-person jurors, although both samples were recruited in the same manner. **Conclusions:** Despite concerns that virtual formats substantially reduce jurors' attention/engagement and change the nature of their deliberations, virtual jurors thoroughly processed relevant evidence and reportedly expended more effort in doing so. Although virtual formats may require more technologically savvy jurors (expected to correlate with a juror's age, wealth, and education), this study provides little evidence that virtual jury participation fundamentally alters core aspects of jury deliberation.

Public Significance Statement

As courts consider virtual jury trials, it is important to understand the consequences of using virtual juries. This study found few major differences between mock juries that deliberated in person and virtually—virtual jurors were just as attentive and thoughtful, and deliberations were generally comparable. More research is needed to understand when and how differences may matter, but these findings suggest that virtual juries might be a viable alternative to traditional in-person trials.

Keywords: virtual juries, gist, jury decision making, group deliberation, online deliberation

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Krystia Reed  <https://orcid.org/0000-0003-4373-3450>

Valerie P. Hans  <https://orcid.org/0000-0003-4470-5478>

Vivian N. Rotenstein  <https://orcid.org/0000-0002-9036-5542>

Peter McKendall  <https://orcid.org/0009-0005-0422-0689>

Addison Rodriguez  <https://orcid.org/0009-0004-2454-2688>

Rebecca K. Helm  <https://orcid.org/0000-0003-1429-3847>

Valerie F. Reyna  <https://orcid.org/0000-0003-2851-5797>

Prior to data collection for this study, Krystia Reed left Cornell University

for the University of Texas at El Paso. Vivian N. Rotenstein is currently a litigation consultant at Blueprint Trial Consulting. Peter McKendall is currently a law student at Boston College Law School. Addison Rodriguez is currently a law student at Northwestern Pritzker School of Law.

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Courts have increasingly used virtual approaches to conduct legal proceedings, motivated by the ease and greater accessibility of doing so. However, courts have been reluctant to conduct jury proceedings virtually. Lengthy pauses in the conduct of jury trials during the COVID-19 pandemic had significant negative effects, including mounting case backlogs, increased pressure to arbitrate or settle cases, and the absence of community input into the resolution of disputes (Jolly et al., 2022). In response to such challenges, some courts decided to proceed with virtual jury trials (Hans, 2022), the focus of this research.

When the pandemic required stopping our in-person mock jury research project (see Reed et al., 2024), our research team conducted the same experiment using a virtual platform, resulting in comparable data for in-person and virtual juries deliberating on the same case facts and making damage award decisions. The sequential in-person and virtual mock jury studies produced a quasi-experiment that enabled us to examine effects of in-person versus virtual jury deliberations in this context. The design allowed us to compare results from each type of jury to assess the extent to which the processes and outcomes of virtual and in-person mock jury proceedings differed. Compared with true experiments, making causal inferences based on quasi-experiments can be complicated by concurrent changes (Campbell & Stanley, 1966). In our case, the shift to virtual juries overlapped with the COVID-19 pandemic and associated social, economic, and other changes. The current quasi-experiment investigates advantages and disadvantages of online versus in-person group discussions and decision-making processes. Given increased interest in the adoption of online procedures and forums in legal and nonlegal domains, it is important to compare virtual and in-person experiences. However, limited research has examined the role of virtual proceedings in legal decision making, particularly with respect to jury decision making. Moreover, we compared virtual and in-person civil juries, which have received less attention and study than criminal juries. Thus, our study contributes to this timely issue.

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Virtual Legal Proceedings

For several decades, courts have used remote hearings and other virtual proceedings to conduct various types of legal business (Diamond et al., 2010; Lederer, 2021). Some courts, for example, have relied on teleconferencing or videoconferencing to conduct arraignments, bail hearings, and immigration hearings. Online proceedings are seen as efficient, saving time and resources, and improving access to the courts (Mentovich et al., 2023). However, defense attorneys have raised due process concerns, arguing that virtual hearings interfere with effective lawyering and client communication (Turner, 2020). In a survey examining perceptions of virtual court among stakeholders (probation officers, county attorneys, defense attorneys, and judges), many (72%) reported satisfaction with the virtual system, describing it as more efficient, flexible, and convenient than in-person court (Wagner et al., 2022). However, 50% retained some misgivings, specifically in terms of rapport building, engagement, technology use, internet connection, and time delays.

A handful of empirical studies have compared in-person and virtual legal proceedings outside the jury context. Research on bail and immigration hearings has shown negative effects of virtual proceedings. Comparing bail hearings 8 years before and after Cook County in Chicago shifted to using closed-circuit television (CCTV) for these hearings, Diamond et al. (2010) found that bail amounts were 51% higher when conducted over CCTV than in person. In immigration courts, video hearings have been found to reduce consultations with attorneys and to increase the likelihood of deportation (Eagly, 2015).

In some cases, victims (notably children under certain circumstances; see *Maryland v. Craig*, 1990) or experts have been permitted to testify virtually. The research on virtual testimony is mixed. In one realistic mock jury study, children gave more accurate testimony over CCTV, but jurors found the testimony to be less believable than the live testimony (Goodman et al., 1998; Orcutt et al., 2001). Another study varied experts testifying “live” in court or

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 The data are available at <https://osf.io/y8sbf/>.

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Correspondence concerning this article should be addressed to Krystia Reed, Department of Psychology, University of Texas at El Paso, 500 West University Avenue, El Paso, TX 79902, United States. Email: kmreed2@utep.edu

through videoconferencing or phone testimony and found no differences in perceptions of the expert, but we note the limitation that the in-court testimony was presented within a videotaped court scenario (Jones et al., 2022).

Concerns With Virtual Jury Trials and Insights From Psychological Theory

Despite several types of legal proceedings moving to remote hearings in recent decades, it was not until the 2020 COVID-19 pandemic halted in-person jury trials that some courts began conducting virtual jury trials. However, there are still many concerns with virtual jury trials. Lawyers have expressed worry about whether they could obtain sufficient information during a virtual jury selection to meaningfully exercise their challenges and whether they would be able to present their cases fully and effectively to a virtual jury (Stanford Criminal Justice Center, 2021; Turner, 2020). There are also concerns that virtual trials might decrease jurors' attention and engagement, alter the nature of the deliberation, and reduce jury diversity—three issues that can be examined through psychological theory and research.

Attention and Engagement

Posttrial juror surveys routinely show that in-person jurors are actively engaged and take their duties seriously (Diamond, 1993). However, many commentators have expressed concerns that virtual jurors might not be as attentive and engaged during the trial as their in-person counterparts (Banes & Feigenson, 2020, 2021). These concerns are usually expressed in terms of attention during the trial phase and engagement during deliberation, but it is important to note that both characteristics are continuous and mutualistic. Jurors must pay attention and engage during both the trial and deliberations to reach an optimal outcome, and trial modality might influence attention and engagement at any point in this process. For the purposes of this article, we structure these concerns into two general subcategories: attention to information and emotional engagement.

Attention to Information

Commentators have expressed concerns that virtual jurors will be less attentive to information than their in-person counterparts. This concern is partially based on practical limitations, such as not being able to monitor a juror's environment and eliminate distractions if jurors are not in a controlled courtroom. Most virtual jury trials have required that jurors participate in a location that is free from distractions and interruptions. A court official monitors the jurors' video for problems that would interfere with juror attention, although this is not entirely controllable when jurors remain in their own environment (Hans, 2022).

However, concerns over the virtual jury modality also partially derive from assumptions about the psychological experience of serving as a juror online versus in person, specifically with respect to how a juror's attention and engagement levels could be negatively affected. For example, there is concern that using a technological interface may increase cognitive load and, as a result, decrease attentional capacity and present challenges for decision-making (Banes & Feigenson, 2021). Existing research, including work grounded in cognitive load theory, suggests that online environments

can increase cognitive load and, therefore, can draw cognitive resources away from the task at hand (see Skulmowski & Xu, 2022). However, increased cognitive load does not inevitably have a negative impact on decision making. Theory-based research has found that cognitive load does not impair gist-based reasoning (e.g., for a review, see Reyna, 2012), which recent models suggest guides juror decisions (Hans & Reyna, 2011; Hans et al., 2022; Reyna et al., 2015). In fact, increases in cognitive load (or cognitive effort) can improve information processing (Bjork & Bjork, 2020). For example, Mayer (2014) suggested (in the context of education) that some components of learning environments that increase cognitive load may actually increase motivation and, as a result, have a positive impact on decision making. Relatedly, some observational work in education has found increases in student engagement (measured by question-asking behavior) in online teaching when compared with in-person teaching (although this study did not use randomized control trials and thus conditions may have differed in other ways; Caton et al., 2020). It is also possible that the anticipation of deliberation at the end of the trial might encourage people to maintain engagement, regardless of whether the trial is in person or remote.

In practice, the modest evidence about juror attention and engagement in virtual trials is mixed. On the one hand, there are reports of virtual jurors being distracted by other activities, which required judicial admonishments (Anderson, 2020), and jurors losing internet connections, which required pausing trial proceedings (Davis, 2021). On the other hand, anecdotal reports of virtual juror attention and engagement are largely positive. For example, in reporting on a pilot project in Florida, the authors stated: "Overall, the jurors were attentive and focused on the case. They seemed to be as attentive as an in-person trial, perhaps more so" (Anderson, 2020, p. 26). Moreover, in a virtual trial in Alameda County Superior Court, the judge reported that "the jurors were, for the most part, very attentive" (Davis, 2021; <https://www.law360.com/articles/1355213/a-tale-of-two-zoom-trials>).

However, research has yet to examine differences in attention to information between in-person and virtual juries. There are two variables that might be of interest. First, knowledge of case facts could be a reflection of how much attention jurors are paying to the trial. Second, perceptions of the parties, especially in cases that are strongly skewed to favor one side, could reflect how jurors are paying attention to the case facts as well.

Emotional Engagement

In addition to concerns that jurors will receive different amounts of information based on the modality of the process, there are also concerns about differences in emotional engagement. For example, there is concern that not being physically copresent with other jurors, attorneys, defendants, witnesses, and judges could result in reduced emotionality in the trial (see Banes & Feigenson, 2020, 2021; Feigenson, 2023, for discussions of copresence and empathy). Existing work provides some support for these concerns. For example, Small and Vorgan (2008) suggested that in online interactions, a lack of nonverbal communication cues such as facial expressions, body language, and eye contact limits perceiving and understanding the emotions of others. Recent neurological evidence also suggests that social experiences differ in online interactions (Zhao et al., 2023), which could potentially impact emotional responses to others. Reduced emotionality could deleteriously affect perceptions and judgments of the parties, as jurors may not fully

appreciate the severity of a plaintiff's injury or the consequences of a liability decision for the defendant (Bandes & Feigenson, 2021).

Research has yet to directly examine these questions. Two possible ways to measure emotional engagement are to ask jurors directly about their motivations and to measure emotional responses. Based on the existing research, it is possible that virtual participation might alter overall emotional response (e.g., positive and/or negative affect) or particular emotions. Two psychological states that we are particularly interested in are attentiveness (see general discussion of attention above) and fatigue. Virtual fatigue (also known as "Zoom fatigue") has been found to be a type of passive fatigue resulting from an underload of stimulation during virtual meetings compared with in-person meetings, which can in turn impact cognitive performance (Nurmi & Pakarinen, 2023). Thus, it is important to assess overall emotionality, attentiveness, and fatigue as a result of virtual jury participation.

Deliberation

A related concern with the virtual jury modality is that the nature of deliberations may differ from in-person deliberations. Zhao et al. (2023), discussed above, found greater exchange of social cues in live face-to-face interaction compared with live virtual interaction. What is more, virtual jurors do not have the same opportunity as in-person jurors to meet at the beginning of the trial or spend time together during trial breaks. Although these times usually do not involve discussion of the trial itself, it is an important time for developing social relationships, which virtual jurors might not be able to develop (Marder, 2022). The lack of interactive relationship building prior to deliberation might have consequences for the nature of the deliberation, including its length, the number of interruptions, and the topics discussed.

Although there is not much research on virtual jury deliberations, research on focus groups is informative. Similar to jury trials, focus group discussions require participants to share opinions on a variety of topics. Existing research on online versus in-person focus groups has found some modest differences in discussions (e.g., length) but broadly comparable content of discussions (e.g., Guest et al., 2023; Woodyatt et al., 2016). As for the impact of virtual discussions, one study compared in-person with virtual political discussions and found no differences in knowledge gains or opinion changes (Grönland et al., 2009).

The limited research on the nature of virtual deliberations of juries specifically is discussed below, but the impact of modality on deliberations and verdicts in this context is difficult to assess without controlled studies. Three specific metrics of a deliberation—its length, the number of interruptions, and discussion topics covered during the deliberation—may be important in comparing in-person and remote proceedings.

Length

Commentators have questioned whether virtual jurors will engage in vigorous and sustained deliberation with fellow jurors if they are not in their personal presence (i.e., copresence; Feigenson, 2023). Sternlight and Robbennolt (2022, p. 556) pointed out that "the degree of connection people feel for one another positively impacts trust, persuasion, cooperation [and] disclosure." Virtual participation might thus reduce the sense of cohesion among fellow jurors, leading to less

incentive to work together, to deliberate vigorously, and to compromise if necessary to arrive at a verdict.

In a project that limited the duration of deliberations, both an in-person and a virtual jury engaged in sustained deliberation, but only the in-person jury was able to reach a verdict within the researchers' artificially imposed time limit (Online Courtroom Project Advisory Board, 2020). Thus, the virtual jury did not reach a decision in the allotted time. However, given that researchers artificially imposed the time limit, the causes and implications are unclear.

Interruptions

The difficulties videoconferencing software presents in being able to view others can also serve as a barrier to effective virtual deliberations (Bandes & Feigenson, 2020), especially because maintaining perceived eye contact is important for credibility judgments (Hemsley & Doob, 1978). Social cues might be more difficult to perceive online, which could influence the flow of conversation. It is possible that the lack of social cues might result in an increased number of interruptions that derail the conversation and result in a more awkward conversation flow (Kurzius, 2021).

Despite these potential social deficits, virtual deliberations may also provide unique benefits over the in-person modality. Videoconferencing software focuses the participants on one another's faces and upper bodies, which may offer useful information by better allowing participants to more easily observe slight changes in facial expressions. In addition, features, such as a "raise-hand" option, a button that indicates a participant has a question or concern without interrupting the current speaker, might be useful in combating some of the challenges and introducing a greater degree of orderliness into a virtual group deliberation compared with an in-person deliberation. Trial consultant Broda-Baum and his colleagues conducted a number of mock virtual jury trials and were surprised to find that virtual mock jurors seemed to be more purposeful about taking turns speaking (reported by Abrams, 2022).

Discussion Topics

One issue that has largely escaped investigation is the impact of the virtual medium on the content of jury deliberations. Research and analysis from other domains lead to conflicting expectations about whether virtual deliberations will affect the substance of the discussion. On the one hand, the lack of physical presence during a virtual deliberation might prevent mutual feedback between jurors and subsequently be detrimental for mutual trust between jurors (Bandes & Feigenson, 2020; Sternlight & Robbennolt, 2022). This lack of trust might in turn reduce jurors' ability to discuss necessary yet contentious topics during the deliberation.

On the other hand, virtual discussions could facilitate greater participation from jury members who are intimidated by in-person discussions. Existing research in the context of online focus group discussions has shown that the themes discussed in virtual discussions are remarkably similar to themes discussed in in-person discussions (Woodyatt et al., 2016). Jurors may even be more willing to candidly discuss sensitive topics in a remote environment (Woodyatt et al., 2016). Moreover, the lack of interaction outside of virtual deliberations could reduce any bias resulting from social groups being formed among particular jurors.

Diversity

The final major question about virtual juries is whether the composition of virtual juries is similar or different than that of in-person juries. Most of this concern centers around the digital divide or the idea that technological access and capabilities vary with age and income (Pew Research Center, 2021). This concern takes two forms: First, groups that are disadvantaged by the digital divide will be less likely to engage in virtual jury service and thus they will be underrepresented in the pool compared with those on the other side of the digital divide. Second, when people disadvantaged by the digital divide do participate in virtual juries, they may engage less often and less effectively due to inexperience and other technological challenges.

Demographic Composition

Diversity can be crucial to ensuring a fair jury by bringing together a variety of experiences and cultural knowledge to inform deliberations (Diamond & Hans, 2023). Without diversity in juries, perceptions of legitimacy of the jury as a democratic institution can decline (Devine & Caughlin, 2014). In criminal cases, diversity has been shown to improve the quality of deliberations (Bergold & Bull Kovera, 2021; Helm, 2024; Peter-Hagene, 2019; Sommers, 2006), but research is limited in terms of the benefits for civil juries (see Hakstian et al., 2022). Jury diversity in online proceedings may be affected by who has access to and can effectively use technology. Virtual jurors are required to have technology, internet access, and digital literacy. Due to access and capability limitations, people who are older or from lower socioeconomic classes may be disproportionately excluded from virtual jury participation when they would not face the same barriers in person. Thus, it is important to compare the demographic composition of in-person and virtual juries across a variety of measures.

Digital Divide and Participation

In practice, courts have attempted to bridge the digital divide by routinely making internet access and required technology available to prospective jurors who do not have them. Moreover, not requiring prospective jurors to leave their homes to participate in person may also make jury service more accessible for those who do not drive, who have physical limitations, or who have responsibilities at home (e.g., child care, elder care, or health problems; National Center for State Courts, 2020).

Judges who have presided over virtual jury selections have provided anecdotal reports that virtual jury pools are equally or more diverse than pre-pandemic in-person jury pools. For example, Florida Judge Jennifer Bailey stated that jury pools were “at least as diverse as pre-pandemic, or even more” (National Institute for Trial Advocacy & Online Courtroom Project, 2021; <https://www.nita.org/webcasts/s71LEC136>). Similarly, Washington state’s King County Court Judge Jim Rogers said that “the jury pool is far more diverse than it used to be and that’s a good thing” (Markovich, 2021; <https://komonews.com/news/local/king-county-superior-court-shifts-to-virtual-trials-chips-away-at-massive-case-backlog>). Texas Judge Emily Miskel reported that the rate of responses for virtual jury summons was higher than for in-person trials (Esquire Deposition Solutions, 2021). These judges’ observations are consistent with the trend observed by others that virtual proceedings increase public access to the courts (Hans, 2022). Even so, it is important to empirically examine whether there

are differences in deliberation participation based on jurors’ demographic factors across both the virtual and in-person jury modalities.

The Present Study

The purpose of the present study was to assess juror attention and engagement, deliberation nature and content, and diversity in virtual versus in-person juries. Drawing on psychological theory as well as the concerns expressed by judges, lawyers, and legal scholars about the potential effects of virtual proceedings, we developed the following hypotheses.

Attention and Engagement

First, we hypothesized (Hypothesis 1) that if deliberating in-person improves juror attention and engagement because of physical copresence and a less taxing cognitive load, then in-person jurors will have higher levels of attention and engagement during deliberations than virtual jurors. We assessed correlates for attention and engagement in four domains: knowledge, perceptions of the parties, decision-making motivation, and emotional response. For emotional response, based on prior research and practical concerns, we expected in-person jurors to have higher emotional responses overall and specifically more attention and fatigue than virtual jurors.

Deliberation

Second, we had competing directional hypotheses about how jury modality would influence the nature of deliberation (Hypothesis 2). We examined deliberation in three domains: length, interruptions, and discussion topics. On the one hand, holding deliberations online (rather than in person) could result in longer deliberations with more interruptions because the process is more difficult than in person; on the other hand, holding deliberations online could result in shorter deliberations with fewer interruptions than in-person deliberations, for example, as a result of deliberation being less vigorous and jurors paying attention to facial cues and utilizing the raise-hand function. We were also interested in exploring the content of deliberation based on modality, and, specifically, assessing differences in the topics discussed during online and in-person deliberations.

Diversity

Third, we had competing directional hypotheses regarding how modality would influence jury diversity (Hypothesis 3). Of course, people who sign up for a virtual jury project might still be self-selected as more competent with technology, in a way that people who respond to a mandatory jury summons might not self-select. However, if the concerns about virtual participation creating barriers to jury diversity are correct, we hypothesized that virtual juries would be less diverse in composition than in-person juries. By contrast, if judges’ positive anecdotal reports of increased diversity in virtual jury selection are accurate, we expected that virtual juries would be more diverse in composition than in-person juries.

Fourth, given the concerns with the digital divide, we hypothesized that jurors from certain demographic groups (e.g., those with lower education or lower socioeconomic status) would be less engaged in the deliberation virtually than in person, driven by their lack of access to and, thus, adeptness with technology (Hypothesis 4). We also

examined the two legally protected jury categories within virtual and in-person juries: race (*Batson v. Kentucky*, 1986) and gender (*J.E.B. v. Alabama*, 1994). Although we had no reason to think the digital divide would vary based on juror gender, research has found a relationship between factors involved in the digital divide (e.g., access to and, hence, adeptness with technology) and race and ethnicity (Fairlie, 2017).

Method

To test these hypotheses, we analyzed data collected from a quasi-experiment involving both in-person and virtual data collection. The data for this article come from an experiment originally designed to examine the effects of attorney guidance on juror and jury damage award decisions. When in-person data collection was halted in March 2020 due to the COVID-19 pandemic, we switched to conducting the experiment with virtual juries. The experiment was identical in all other ways, allowing us to make direct comparisons between the groups. This article focuses on comparing the virtual juries with the in-person juries, while our original in-person jury research is addressed in a separate article as it is distinct theoretically and draws on a different body of scholarship.

The results for the original project are presented in Reed et al. (2024), but it is important to note that we also included modality in the key analyses for that article. There were only a modest number of main effects and interaction effects related to the modality. When differences occurred, there was no consistent pattern suggesting that either in-person or virtual juries performed significantly better in damage-award decision making than the other. Moreover, it was not that in-person and virtual juries were performing equally poorly—in fact, both modalities of juries performed quite well against the theoretical measures of performance. Thus, we saw no systematic differences in performance by deliberation modality, but it is important to consider the potential effects a trial's modality has on the quality of trial processes, which reassured us that it was appropriate to report the results separately. In this article, all analyses are collapsed over the three types of attorney guidance.

Participants

Participants in this study were 317 community members recruited from upstate New York. Jurors participated in juries of five or six individuals. We conducted sensitivity analyses in G*Power ($\alpha = .05$) for the individual and group level analyses. At the individual level, a sample of 317 jurors (142 in person, 175 virtual) yielded a power of .80 to detect effects as small as $d > 0.32$, a power of .90 to detect effects of $d > 0.37$, and a power of .95 to detect effects of $d > 0.41$. At the group level, a sample of 54 juries (24 in person, 30 virtual) yielded a power of .80 to detect effects of $d > 0.78$, a power of .90 to detect effects of $d > 0.90$, and a power of .95 to detect effects of $d > 1.01$. As shown in the tables below, our effect sizes range from .02 to .66 for the individual-level analyses and 0.23 to 15.54 for the group-level analyses.

Participants were 61.3% female (37.8% male, 0.9% other), mostly White (86%; 6.5% Black; 4.7% Asian; 2.6% other) and non-Hispanic (95.5%; 4.5% Hispanic) with an average age of 48.68 years ($SD = 19.72$, range = 18–87). This was a quasi-experiment without random assignment. Participants who completed the study between November 2019 and March 2020 participated in person; participants

who completed the study between November 2020 and June 2021 participated virtually. There were limited differences between the groups, reducing, but not eliminating, our concern about the lack of random assignment, because random assignment can create equivalence on unobserved variables. With respect to the composition of the in-person and virtual juries, they were similar on most dimensions (gender, race/ethnicity, marital status, medical training, juror experience, family income range, political orientation, objective numeracy [ONS], subjective numeracy [SNS], need for cognition, litigation crisis [LC] perceptions); there were differences in age, college degrees, full time jobs, and individual income ranges (see Hypothesis 3).

Participants were recruited using advertisements in local stores, in the local newspaper, and on the local Craigslist pages. We also used local listservs and social media. Given that virtual jurors did not have to show up in person, we added additional questions to ensure they were in the local location. Participants were compensated \$50 for their participation. The entire experiment averaged approximately 3 hr of participation time.

Materials

Full copies of the written materials are publicly available on the Open Science Framework at <https://osf.io/y8sbf/> (Reed & Hans, 2024). The project was determined to be exempt by Cornell University's Institutional Review Board.

Stimulus: Mock Trial

The case facts and judicial instructions were adapted from a hypothetical case file from Tanford (2010), developed for use in law school trial advocacy classes. The filmed mock trial was approximately 1 hr long and involved opening arguments, testimony from eight witnesses, closing arguments, and judicial instructions in a case involving two plaintiffs who alleged that the negligence of the defendants (a commercial truck driver and the company he was driving for) caused their injuries in a motor vehicle accident. The witnesses for the plaintiff's case included the driver of the car, the police officer who came to the scene, the two plaintiffs, a witness who observed the accident, and the plaintiffs' doctor; witnesses for the defense included the defendant and a medical expert witness. As we were primarily interested in damage award determinations, we calibrated the trial evidence such that it strongly supported the plaintiffs' side, so participants would be likely to find the defendants liable. The materials were also skewed to make the plaintiffs seen as highly favorable and the defendant to be perceived as highly unfavorable.

To assess whether differences occurred across different levels of injury, participants saw two plaintiffs whose injuries varied in terms of severity (one mild, one severe). Both plaintiffs were real estate agents who had sustained concussions as a result of the accident. One plaintiff was described as having mild consequences from the accident that lasted for 2 years (mild injury). The other plaintiff was described as having sustained a severe concussion with serious consequences (e.g., inability to work, difficulties socializing, impaired memory, depressed mood) that would last for the remainder of her life (severe injury).

Dependent Measures

Attention and Engagement. All measures of juror attention and engagement were assessed postdeliberation at the individual

juror level. As correlates for attention and engagement, we assessed knowledge of case facts, perceptions of the parties, motivation in making the decision, and emotional response. For the virtual jurors only, we also included questions about their virtual jury experience.

Knowledge of Case Facts. Participants identified the two defendants and two plaintiffs and received 1 point each for each correct identification. Participants then completed nine true–false attention questions (e.g., “The accident occurred at State Route 3 and Highway 451.”) and were given 1 point for each correct answer. We then created a total knowledge score by summing the points on all 13 questions with higher scores indicating greater knowledge of the case facts.

Party Perceptions. We also assessed jurors’ attention to the case presentation through their ratings of the parties. Although this might not be a traditional measure of attention and engagement, in this study, we believe it represents both. First, the case is skewed very strongly to make the plaintiffs likable and the defendants unlikable, so it measures attention to the content of the trial. Second, if empathy is affected by deliberation modality, judgments about the parties, in particular the plaintiffs’ injuries, may differ. In other words, because the case was skewed toward the plaintiffs, greater attention to case facts should translate to a better appreciation of the plaintiff’s injuries and of the defendant’s liability.

Party perceptions were measured via seven items. The first four items assessed overall perceptions of each defendant and each plaintiff on 7-point Likert-type scales ranging from 1 (*extremely negative*) to 7 (*extremely positive*) with a midpoint of 4 (*neutral*). The last three items assessed perceptions of responsibility of each defendant and the plaintiffs on a 7-point Likert-type scale ranging from 1 (*not at all responsible*) to 7 (*extremely responsible*) with a midpoint of 4 (*moderately responsible*). A factor analysis indicated that all variables loaded on one factor that seemed to assess positive perceptions of the plaintiff. We reverse coded items that loaded negatively onto the factor (i.e., perceptions of the company/driver; ratings of plaintiffs’ responsibility) and then combined the seven items into an average composite score ($\alpha = .73$), in which higher scores indicated more favorable perceptions of the plaintiffs.

Motivation. Jurors also indicated the extent to which they were motivated to compensate the plaintiff for pain and suffering, to compensate the plaintiff for economic losses, and to punish the defendants on 7-point Likert-type scales ranging from 1 (*very little*) to 7 (*extremely*) with a midpoint of 4 (*moderate*). A factor analysis indicated these variables were not related, and therefore we analyzed them individually.

Emotion. To assess jurors’ overall emotional response to the stimuli presented to them, we administered the Positive and Negative Affect Scale–X (PANAS-X; Watson & Clark, 1994). The PANAS-X is a 60-item self-report measure assessing overall affect. Reliability of the measure in our sample was good for negative affect ($\alpha = .71$), but not as strong for positive affect ($\alpha = .50$). The scale also assessed 11 specific emotions: fear ($\alpha = .80$), sadness ($\alpha = .80$), guilt ($\alpha = .90$), hostility ($\alpha = .82$), shyness ($\alpha = .83$), fatigue ($\alpha = .87$), surprise ($\alpha = .80$), joviality ($\alpha = .90$), self-assurance ($\alpha = .84$), attentiveness ($\alpha = .79$), and serenity ($\alpha = .80$). Participants rated the strength of each emotion in the moment on a scale from 1 (*very slightly or not at all*) to 5 (*extremely*). The PANAS-X has been found to be strongly related to other measures of mood, and there is high convergence between self-report and observations (Watson & Clark, 1994).

Virtual Experience. Finally, virtual jurors rated their virtual jury experience on a Likert-type scale ranging from 1 (*virtual hurting deliberations*) to 4 (*neither helping nor hurting*) to 7 (*virtual helping deliberations*). They also rated the quality of their internet during their jury experience on a scale of 1 (*very bad*) to 4 (*moderate*) to 7 (*very good*).

Deliberation. Measures of the nature of each deliberation were assessed at the group level during deliberation. Groups of five to six jurors participated in each deliberation and were told that, as a jury, they had to reach a unanimous decision about liability and damage awards. All juries found the defendant liable and awarded damages. We assessed the nature of deliberation at the group level in three primary categories: length, interruptions, and discussion topics.

Length. The first measure of deliberation was how long the deliberations were. The longer the deliberation, the more time jurors have to discuss important issues. Deliberation length was measured in three ways: duration in minutes, total word count per jury, and average word count per juror. The average word count per juror was calculated by taking the total word count for the jury and dividing by the number of jurors in the deliberation to take into consideration variations in jury size.

Interruptions. A second measure of deliberation is how often jurors interrupted one another during deliberations. We defined interruption as verbal or vocal disruption directed at another juror when they were talking, but not two or more people starting to talk at the same time.

Topics. A final measure of deliberations was the topics discussed. Deliberations were transcribed and then coded for 56 variables of discussion by trained research assistants using NVivo 12+. All qualitative coders were blind to the experimental condition and demographic composition of each jury. Interrater reliability was assessed for 28 of the 54 (51.9%) deliberation transcripts, which were coded by two research assistants; the remaining transcripts were coded by one of the trained research assistants. Overall, there was moderate agreement in coding across categories ($k = .68$; see additional online Table 1 at <https://osf.io/y8sbf/> for breakdown by category).

Given that many of the categories were not discussed frequently, we collapsed them into 13 codes that fell into six broad categories: plaintiff, defendant, judge, juror, fairness, and nonlegal factors. The plaintiff category included separate codes for discussion of each plaintiff’s award, each plaintiff’s injuries, comparisons between plaintiffs, and discussion of plaintiff responsibility for their injury. The defendant category included separate codes for discussions of the liability of the driver and the liability of the company. The judge category included comments about the judge and judicial instructions. The juror category included separate codes for discussions of personal experiences and uncertainty (either having questions or being confused). The fairness category included discussions of the fairness of the award. The nonlegal factor was collapsed into one variable that captured any discussion of punitiveness, speculation, insurance, and legal costs, which the jury had been instructed not to consider. For each of these codes, we tracked how often the topic was discussed during deliberations.

Juror Diversity. Juror diversity was measured at the individual level. We had two categories of diversity measures: demographic and individual differences. The demographic measures (age, gender, race, ethnicity, marital status, education, job status, income range, medical training, previous jury experience, and political orientation) were

collected prior to seeing the trial (as a mock voir dire). Gender, race/ethnicity, marital status, full-time employment, medical training, and previous jury service were measured categorically but had too few respondents in most categories to analyze appropriately, so for the analyses, we collapsed these variables into dichotomous measures. These variables were dichotomized as follows: gender (male vs. female, excluding nonbinary genders due to sample size), race/ethnicity (non-Hispanic White vs. all other races/ethnicities), marital status (married vs. not married), college degree (no vs. yes), full-time employment (no vs. yes), medical training (no vs. yes), and previous jury service (none vs. some).

We also measured individual differences on four scales assessing cognitive capabilities and litigation attitudes (see Reyna & Brainerd, 2023, for relevant theory): ONS ($\alpha = .87$), SNS ($\alpha = .87$), need for cognition scale ($\alpha = .89$), and LC ($\alpha = .78$). These scales were administered after deliberation. The ONS (adapted from Lipkus et al., 2001; Peters et al., 2007; Schwartz et al., 1997) is a 15-item measure of mathematical ability that has been linked to improved jury damage-award decisions (Helm et al., 2020). The SNS (Fagerlin et al., 2007) is an eight-item measure of participants' perceptions of their mathematical ability, which was moderately positively correlated with ONS, $r(314) = .50, p < .001$. The need for cognition scale (Cacioppo & Petty, 1982) is a 16-item measure of how much people enjoy thinking and has been found to be related to juror legal decisions (Bornstein, 2004). The LC (Hans & Lofquist, 1994) is a seven-item measure of perceptions of the civil justice system, and higher scores have been linked to lower damage awards (Hans & Lofquist, 1994; Robbenolt, 2002).

Procedure

After signing up for the study, participants were scheduled to participate in groups on weekend time slots. Participants either

participated in person (before March 2020) or virtually via Zoom (after March 2020). Prospective virtual jurors participated in a technology check on the platform prior to the study to ensure they had a working internet connection and would be able to use the platform without difficulty. Participants provided demographic information on the mock voir dire questionnaire and then watched the hour-long mock trial as a group. Next, participants rendered an individual verdict, took a 10–15-min break, and then deliberated until they reached a group verdict. Participants then completed an extensive individual postdeliberation questionnaire assessing their agreement with the group verdict, their perceptions of the trial overall, and individual difference measures. Finally, participants were debriefed, thanked for their participation, and compensated \$50 for their time. Participants were observed at all times except during the break, and deliberations were recorded.

Results

Attention and Engagement

We tested whether in-person juries would be more attentive and engaged (Hypothesis 1) through a series of independent-samples t tests using modality as the independent variable (see Table 1 for all means and t -test results). As noted above, we had four categories of attention and engagement measured at the individual juror level: knowledge, perceptions of the parties, motivation, and emotional response. On average, jurors had high levels of knowledge ($M = 12.03, SD = 1.23$, range = 3–13), viewed the plaintiffs positively ($M = 5.46, SD = 0.60$), and had high levels of self-reported motivation (to compensate pain and suffering: $M = 5.56, SD = 1.35$; to compensate economic losses: $M = 6.26, SD = 0.92$; to punish the defendants: $M = 3.49, SD = 1.94$).

As demonstrated in Table 1, the sole significant difference in juror attention and engagement by modality was that virtual jurors

Table 1
Hypothesis 1: Comparisons Between In-Person and Virtual Jurors in Attention and Engagement

Variable	In person	Virtual	t	df	p	d
	$M (SD)$	$M (SD)$				
Knowledge	12.02 (1.31)	12.05 (1.16)	−0.18	315	.86	.05
Perceptions of plaintiff	5.46 (0.62)	5.45 (0.58)	0.30	313	.77	.08
Motivation						
Pain and suffering	6.08 (7.98)	5.68 (1.27)	0.65	315	.52	.18
Punish defendants	3.65 (2.04)	3.35 (1.85)	1.34	315	.18	.37
Compensate economic losses	6.27 (.88)	6.25 (.95)	0.22	315	.82	.06
Cognitive effort	5.23 (1.48)	5.55 (1.24)	−2.15	315	.03	.59
Emotion						
Positive affect	22.68 (4.42)	23.15 (4.01)	−0.98	298	.33	.27
Negative affect	16.27 (4.42)	16.19 (4.95)	0.15	306	.88	.04
Fear	1.18 (0.39)	1.22 (0.45)	−0.88	314	.38	.24
Hostility	1.30 (0.47)	1.37 (0.60)	−1.06	309	.29	.29
Guilt	1.12 (0.42)	1.16 (0.43)	−0.72	309	.47	.20
Sadness	1.28 (0.50)	1.31 (0.51)	−0.47	305	.64	.13
Joviality	2.21 (0.86)	2.15 (0.82)	0.68	313	.50	.19
Self assurance	2.39 (0.95)	2.23 (0.73)	1.68	309	.09	.46
Attentiveness	3.31 (0.93)	3.42 (0.83)	−1.10	306	.27	.30
Shy	1.32 (0.57)	1.29 (0.52)	0.45	314	.65	.12
Fatigue	1.69 (0.78)	1.74 (0.79)	−0.63	313	.53	.17
Serenity	3.26 (0.89)	3.26 (0.96)	0.07	309	.94	.02
Surprise	1.55 (0.76)	1.40 (0.73)	1.77	313	.08	.48

Note. Values presented in bold indicate significant effects ($p < .05$). All variables were assessed at the individual juror level. df = degrees of freedom.

reported exerting more cognitive effort than in-person jurors. There were no significant differences in knowledge, perceptions of the parties, or emotional response (as assessed by the PANAS self-report measure) by modality. Specifically, there were no differences in positive or negative affect, nor were there differences in attentiveness or fatigue by modality.

Additionally, we asked virtual jurors about their perceptions of participating virtually. Because we only have this measure for virtual jurors, we could not make direct comparisons with in-person jurors, but descriptively, it is worth noting that jurors did not report significant problems with virtual deliberations. On average, participants reported that deliberating virtually somewhat helped deliberations ($M = 5.11$, $SD = 1.56$, range = 1–7). Out of the 175 jurors, 22 indicated that being virtual was worse than neutral; 92 reported the virtual experience being better than neutral. Generally, jurors had relatively good internet connections ($M = 6.51$, $SD = 0.92$, range = 2–7). Only two jurors reported their internet being worse than moderate.

Deliberation

Next, we tested our competing directional hypotheses about whether there were differences in the nature of deliberation between in-person and virtual juries (Hypothesis 2) through a series of independent-samples t tests using modality as the independent variable (see Table 2 for all means and t -test results). As discussed above, we had three measures relating to deliberation: length, interruptions, and discussion topics. Length was measured three ways: duration in minutes ($M = 46.08$, $SD = 21.99$, range = 7.02–117.63), total word count per jury ($M = 7,513.55$, $SD = 3,661.37$, range = 1,300–18,282), and average word count per juror ($M = 1,284.73$, $SD = 639.53$,

range = 216.67–3,168.60). On average, there were 179.28 interruptions per deliberation ($SD = 165.07$; range = 2–737).

As depicted in Table 2, there were no significant differences in deliberation length (duration, total word count, or average word count by juror) between in-person and virtual juries. However, in-person juries interrupted one another nearly four times more ($M = 307.04$, $SD = 163.06$) than virtual juries ($M = 77.07$, $SD = 66.31$).

Our last assessment of the nature of deliberation was of the topics discussed during deliberations. Again, we had 13 frequency codes that fell into six categories (plaintiffs, defendants, judge, jurors, fairness, nonlegal factors). Out of the 13 frequency codes, five differed significantly across modality. In-person juries discussed the severely injured plaintiff's award, severely injured plaintiff's injury, the judge, and their own personal experience more than virtual juries. Virtual juries discussed fairness more than in-person juries.

Diversity

Next, we examined whether there were demographic or attitudinal differences between in-person and virtual juries (Hypothesis 3). We conducted chi-square analyses for the dichotomous variables and independent-samples t tests for scaled variables. As Table 3 shows, virtual jurors were younger, more likely to have a college degree, more likely to be employed full time, and were in a higher income bracket than in-person jurors. There were no differences in other diversity measures based on modality.

Finally, we examined whether jurors from certain demographic groups would participate less during deliberations in virtual as opposed to in-person juries (Hypothesis 4). We conducted a series of mixed models with modality and demographic variables as independent variables (education, socioeconomic status, age, race, and

Table 2

Hypothesis 2: Comparisons Between In-Person and Virtual Jurors in Deliberation Quality

Variable	In person <i>M</i> (<i>SD</i>)	Virtual <i>M</i> (<i>SD</i>)	<i>t</i>	<i>p</i>	<i>d</i>
Length					
Duration	42.12 (20.55)	49.25 (22.92)	–1.19	.24	.32
Total word count	8,052.96 (3,965.62)	7,067.14 (3,568.72)	0.95	.35	.26
Average word count	1,374.31 (685.69)	1,221.70 (639.97)	0.84	.41	.23
Interruptions	307.04 (163.06)	77.07 (66.31)	7.04	<.001	1.93
Discussion topics					
Plaintiffs					
Award (severe)	37.75 (13.94)	26.50 (10.52)	3.38	<.001	12.15
Award (mild)	25.21 (12.29)	23.27 (11.53)	0.60	.55	11.87
Injuries (severe)	35.46 (17.67)	22.80 (13.62)	2.97	.004	15.54
Injuries (mild)	15.83 (14.43)	10.17 (7.45)	1.87	.07	11.09
Comparisons	6.29 (5.77)	6.47 (4.88)	–0.12	.90	5.29
Liability	0.29 (1.08)	0.03 (0.18)	1.29	.20	0.73
Defendants					
Driver liability	10.38 (11.53)	6.2 (4.62)	1.81	.08	8.41
Company liability	5.75 (5.54)	5.07 (3.64)	.55	.59	4.58
Judge	2.42 (1.82)	1.30 (1.49)	2.48	.016	1.64
Juror factors					
Personal experience	7.96 (9.10)	3.17 (3.29)	2.68	.010	6.53
Uncertainty	0.79 (1.22)	0.73 (1.08)	.19	.85	1.14
Fairness	1.13 (1.36)	2.27 (1.89)	–2.48	.016	1.68
Nonlegal factors	9.58 (9.08)	5.77 (6.88)	1.76	.09	7.93

Note. Values presented in bold indicate significant effects ($p < .05$). All variables were assessed at the deliberating jury level with $df = 52$. df = degrees of freedom.

Table 3*Hypothesis 3: Comparisons Between In-Person and Virtual Juries in Diversity*

Variable	Dichotomous measure					
	In person (%)	Virtual (%)	χ^2	<i>df</i>	<i>p</i>	ϕ
Gender (male)	40	37	0.37	1	.54	.03
Gender (nontraditional)	0	2	2.42	1	.12	.09
Race/ethnicity (White)	86	83	0.55	1	.46	.04
Married	35	42	1.72	1	.19	.07
College degree	67	79	5.75	1	.02	.14
Full-time job	24	36	5.37	1	.02	.13
Medical training	31	23	2.53	1	.11	.09
Juror experience	19	13	2.17	1	.14	.08

Variable	Continuous measure					
	In person <i>M</i> (<i>SD</i>)	Virtual <i>M</i> (<i>SD</i>)	<i>t</i>	<i>df</i>	<i>p</i>	<i>d</i>
Age	51.12 (20.23)	46.70 (18.95)	2.00	315	.047	.55
Individual income range	3.45 (1.97)	4.07 (1.91)	-2.42	230	.02	.66
Family income range	5.01 (2.14)	5.50 (1.84)	-1.82	212	.07	.49
Political orientation (liberal)	2.67 (1.61)	2.36 (1.38)	1.84	310	.07	.50
Objective numeracy	9.19 (2.50)	9.59 (2.37)	-1.46	313	.14	.40
Subjective numeracy	4.34 (1.04)	4.28 (1.11)	0.66	314	.51	.18
Need for cognition	26.15 (18.60)	24.77 (20.10)	0.62	311	.53	.17
Litigation crisis	4.01 (0.94)	3.96 (0.97)	0.40	314	.69	.11

Note. Values presented in bold indicate significant effects ($p < .05$). Analyses were conducted at the individual juror level. The first half of the table includes dichotomous variables analyzed using chi-square analyses, with percentages of people in each modality condition. The second half includes continuous variables analyzed using independent-samples *t* tests, with means and standard deviations for each modality condition. *df* = degrees of freedom.

gender), word count of each individual juror as the dependent variable, and a random effect of jury. Contrary to expectations, there were no significant interactions between deliberation modality and the participant's education, $F(1, 286.24) = 1.74$, $p = .19$; income, $F(1, 208.35) = 0.02$, $p = .902$; race/ethnicity, $F(1, 281.03) = 1.96$, $p = .163$; or gender, $F(1, 281.99) = 0.00$, $p = .97$, on word count of each juror.

There was a significant main effect of income, such that participants with higher income uttered more words ($M = 1,397.80$ [1,181.34, 1,614.25], $SE = 109.05$) than participants with lower income ($M = 1,100.42$ [905.08, 1,295.75], $SE = 97.90$), $F(1, 208.35) = 6.81$, $p = .010$; however, as noted above, it was not more pronounced in one modality than the other. There were no other significant main effects of the other demographic variables.

Discussion

The results of our quasi-experiment offer little support for concerns that virtual jury deliberation would be markedly worse (or better) than in-person jury deliberation.

Significant Differences

Generally, there were a limited number of significant differences in juror attention and engagement, the nature of deliberation, and juror diversity based on deliberation modality. Taken as a whole, the significant differences point in somewhat different directions. Consider, for example, the finding that virtual jurors reported expending more cognitive effort in deciding the case (the only significant finding in regard to attention and engagement, Hypothesis 1).

This finding is consistent with the concerns of some scholars and expectations based on psychological research on cognitive load. Increases in cognitive exertion—a reflection of the greater cognitive load of deciding virtually—could be problematic if it results in juror fatigue and subsequent lower quality decision making. However, in this study, there was no corresponding increase in jurors' feelings of fatigue. Extensive research in psychology has documented the way that heavy cognitive load can undermine decision processes (Bandes & Feigenson, 2021; Skulmowski & Xu, 2022). However, under the right circumstances, it could be beneficial if jurors' increased cognitive exertion produces a level of desirable difficulties that maintain interest and engagement and generally improve performance (Bjork & Bjork, 2020).

The nature of deliberations (Hypothesis 2) differed somewhat: In-person jurors were more likely to discuss the severe award, the severe injury, the judge, and their own personal experiences, less likely to discuss fairness, and more likely to interrupt one another than virtual jurors. However, there is a similar duality with respect to these findings. In-person juries were more likely to discuss several legally relevant and important topics, such as the award and injury (for the severely injured plaintiff, but not the mildly injured plaintiff). In examining the transcripts overall, regardless of modality, discussions about the award tended to focus on the difficulty in deciding on an award (e.g., "Dude, this is hard. Like how do you put a number on somebody's life?") and the lack of guidance provided in doing so (e.g., "I can't believe that there's not some framework for figuring out the monetary compensation."). With respect to discussion around the plaintiffs' injuries, jurors focused on trying to grasp the extent of the injury (e.g., "But she's a human being. She got wounded, she bled."). In-person juries were also more likely to discuss the judge's

instructions than virtual juries (e.g., “to what extent does the judge take [the lack of jury guidance about assigning dollar damages] into account?”). These topics are important for juries to consider, and in-person juries discussed most of these topics more than virtual juries.

On the other hand, the appropriateness of the discussion of other topics is more ambiguous. For example, in-person juries were more likely to discuss personal experience than virtual jurors. Some jurors brought in personal experience about serving as jurors to help establish the procedure for deliberation. Other jurors discussed their experience with real estate agents to determine how long the plaintiffs might be able to work. Jurors also shared their experiences with car accidents or medical injuries, such as concussions or traumatic brain injuries (TBIs) that helped provide context for their opinions. These experiences might be helpful and are arguably part of the reason we value the diverse perspectives of a community of peers deciding legal cases. However, information based on personal experience is not presented in court or legally vetted by the attorneys or judge. Some information might be inaccurate, and the use of any personal experience might lead to inconsistencies across juries. One juror even recognized this concern stating,

well, I mean, that’s also why it’s interesting that we decide that in our country that you know it’s a jury of your peers. It’s a random pool of the population above a certain age. We all have different life experiences, you know. [Another juror] and I have experience with like TBIs. But if you didn’t have people who had experience with TBIs, would the jury award something different? Would they be people who are, like, “those aren’t real?”

In practice, prospective jurors’ personal experiences are typically probed during voir dire and the judge instructs them not to allow their personal experiences to bias their decisions as a juror. Nevertheless, there is no court representative in the deliberation room preventing jurors from using their personal experiences in their decisions. The increase in personal discussions does suggest that in-person jurors were more engaged with one another, which would be consistent with our earlier discussion of research on the social advantages of in-person interaction (Marder, 2022; Zhao et al., 2023). Thus, the value of personal experience is complicated and deserves further study.

Interestingly, this increase in the quantity and variety of discussion topics by in-person juries occurred without a corresponding increase in deliberation length compared with virtual juries. Therefore, it is possible that in-person juries are making more efficient use of their time. They are able to talk about more topics at the same time. This might be due to greater reliance on body language in in-person deliberations or greater rapport. More research should examine this in the future.

In-person juries also had a greater propensity to interrupt than virtual juries. Interruptions can be problematic if they slow down deliberations or prevent jurors, especially from certain groups, from presenting their points of view. It is also possible that interruptions could be positive—people may interrupt more if they are more engaged, excited, or want to agree with the speaker. Tannen (2005) called such positive interruptions “cooperative overlap” or verbalizations to indicate support and endorsement of a speaker’s comments. In this study, interruptions were coded objectively. However, this coding does not reflect whether interruptions were positive (i.e., supportive of previous points), negative, or mixed responses to previous locutions; such determinations were difficult to make given

the dynamics of the interactions. Therefore, the nature of interruptions is an important topic, and future research should examine the valence of the interruptions based on modality in more depth.

Compared with in-person jurors, virtual jurors were younger, more educated, more likely to be employed full time, and had higher incomes (Hypothesis 3). Each of these factors is arguably linked to greater accessibility to technology; however, more work should examine this with a random assignment of condition. Despite not finding a significant difference in gender based on modality, we note that all six individuals who identified as nonbinary in terms of gender participated virtually.

Substantial Similarities

Although there are some notable differences, most of our findings suggested that in-person and virtual jurors were substantially similar. Just like prior findings that in-person jurors are typically attentive and engaged (Diamond, 1993), both our in-person and virtual jurors reported being attentive and engaged in this study. Although virtual jurors reported exerting more cognitive effort than in-person jurors, both groups reported exerting substantial effort, and there were no other significant differences in attention and engagement by modality (Hypothesis 1). In fact, in both modalities, jurors were almost at ceiling for knowledge of basic case facts, averaging 12.03 out of 13 possible points. In-person and virtual jurors also rated themselves quite similarly in terms of their emotional state along multiple dimensions, including overall positive and negative affect. It is also worth noting that there were no significant differences in ratings of attentiveness or fatigue specifically, two emotions that we were particularly interested in. Thus, there were no clear costs or benefits to attention and engagement attributable to modality. Moreover, attention and engagement were relatively strong despite the lack of a controlled, monitored environment that courts typically provide (Hans, 2022). Our impression in observing the deliberations was that most jurors seemed highly engaged and actively participated despite environmental distractions.

Similarly, there were limited differences in the nature of the deliberations (Hypothesis 2). Duration, total word count per jury, and average word count per juror did not differ significantly. In addition, there was substantial overlap in the topics discussed in the deliberations under these two modalities. Moreover, where there were differences in discussion, there were not corresponding differences in ratings. For example, although in-person jurors discussed the parties more than virtual juries did, their subjective impressions of the parties were not significantly different.

Virtual jurors did not differ from in-person jurors on most demographic variables, contrary to expectations (Hypothesis 3). There were no differences in most demographic characteristics (gender, race/ethnicity, marital status, medical training, juror experience, family income range, political orientation) by modality. Nor were there differences in ONS, SNS, need for cognition, or LC perceptions by modality. Even more importantly, we did not find that deliberation modality interacted with demographic variables in terms of the number of words spoken (Hypothesis 4). That should be emphasized because one concern about virtual juries is that people with lower income and lower education would participate in the deliberation less in a virtual jury because of more limited access to and experience with technology; that did not seem to be the case.

Limitations and Future Directions

Given that the majority of results were nonsignificant, it is important to consider whether the lack of significant effects is due to limitations of the study. First, although our samples of participants resemble the local community, they are predominantly White and more highly educated compared with other populations. In more racially diverse or less educated communities, there could be more dramatic demographic differences in the composition of in-person and virtual juries.

Second, the mock trial study departed from actual jury trials in several ways. Although we asked participants to provide demographic and other information with a preliminary questionnaire, we did not remove individuals on the basis of their responses. In actual jury trials, the jury selection process can alter the composition of the seated jury. One could imagine that a prospective juror's lack of facility or comfort with remote technology might affect the individual's ability to participate fully and might lead the judge to excuse the individual or the lawyers to remove the individual with a peremptory challenge.

Because both in-person and virtual jurors viewed the same videotaped mock trial, we could not test some of the claims about the impact of virtual trials on jurors' attention during the trial or their empathy for the participants. Instead, we were limited to comparing the deliberations of in-person and virtual jurors. In a live trial wherein jurors are physically present with the parties, witnesses, and other jurors, some jurors might feel more emotion. Moreover, our dependent variables—for example, perceptions of the litigants, case knowledge, attention, engagement, and emotional responses—were measured following the deliberation, rather than contemporaneously, so juror interactions during deliberation may have affected these judgments.

What is more, a real trial might take days or weeks and involve more complicated evidence and jury instructions. Although we found limited differences based on modality, there might be more pronounced differences in longer and more complicated trials and in studies that are able to examine virtual versus in-person responses to trial testimony. Our study was also intentionally skewed toward the plaintiff to assess damage award decision making, but there could be differences in more balanced trials. Therefore, more research is necessary to know if differences would be exacerbated and, if so, whether it would suggest virtual participation is better or worse. Most research studies on group decision making and jury decision making do not involve such prolonged processes. Therefore, it might be beneficial to run shadow juries in real trials that vary in in-person or virtual participation to examine whether the effects of modality differ in longer trials.

Third, one might wonder about whether the quasi-experiment was sufficiently powered. We were sufficiently powered to detect a medium effect size for the individual analyses and had sufficient power to detect a medium-to-large effect size for the group-level analyses. Therefore, our ability to detect small effects at the group level, particularly with deliberation measures, was limited.

Fourth, this experiment was a mock jury study and used a videotaped trial for all participants. This was beneficial for experimental control because we could then examine the effects of deliberation modality. However, in real jury trials, in-person jurors see a live trial, while virtual jurors see a video stream of a live trial. This design did not allow us to address important questions about the role of live

evidence presentation in the decision. Presentation differences might be particularly important for emotional and empathetic responses to the trial participants and witnesses (Bandes & Feigenson, 2021). Moreover, Rose et al. (2010) reported that jurors attend to the “offstage” behavior of the parties, watching for signs of inconsistency between testimony and actions in the courtroom. It is not clear whether such offstage behaviors are diagnostic or misleading and, hence, whether reducing opportunities for informal observation is ultimately good or bad, but they are certainly extraneous legally. Attention to offstage behavior could not be assessed in this study. Nor were the attorneys or witnesses able to modify their questioning or testimony based on their perceptions of juror engagement and understanding. Comparing in-person and virtual shadow juries might be used to explore these issues.

Fifth, more research could be conducted examining what makes a high-quality deliberation compared with a low-quality deliberation. Our design only allowed us to explore differences based on modality in the nature of the deliberation, but we were not able to assess if these differences resulted in higher or lower quality deliberations. For example, length of deliberations alone might not reflect quality—longer deliberations might be higher quality, but only if the deliberation is also involving a deeper discussion of important topics. It is also possible that longer deliberations involve more discussion of inappropriate topics or reflect greater disagreement, perhaps even due to the lack of attention during the trial. Similarly, interruptions might negatively impact the quality of deliberation by slowing it down and interrupting the flow, but interruptions that correct inaccurate information or redirect the flow of off-topic conversation might improve deliberations.

Finally, because modality was not randomly assigned, this project has the typical limitations of a quasi-experiment (Campbell & Stanley, 1966). Moreover, the shift to virtual juries occurred at the same time as the pandemic, which creates a potential natural confound. In general, the groups were remarkably similar, and therefore it is difficult to identify differences that could be a result of the pandemic itself. We did not find differences in some areas that were of concerns during the pandemic. For example, even though the pandemic led to increases in unemployment (Redbird et al., 2022), the virtual jurors who participated were more likely to be employed. One potential way that the pandemic might have influenced our participants in the virtual condition was by raising cognitive load. Anxieties associated with societal disruption could have contributed to greater cognitive load among those who participated during the pandemic (on potential effects of the pandemic on cognition relevant to juror decision making, see Millar et al., 2023). However, our finding that virtual jurors reported greater cognitive load is also consistent with research on virtual proceedings more generally. Given the design of this quasi-experiment, we cannot disentangle the effects of modality from effects caused by the pandemic. A true experiment, in which participants are randomly assigned to participate either in person or remotely in a mock jury study, would be an excellent follow-up to the current project.

Conclusions

Overall, we conclude that based on the results from this quasi-experiment, there is considerable overlap in virtual and in-person jury deliberations and in case outcomes (see Reed et al., 2024) across deliberation modalities. Although virtual jurors found the

task more demanding and expended greater cognitive effort, the differences we observed did not point to virtual juries being significantly worse than in-person juries. In fact, in several ways, they appeared to perform somewhat better. Apropos of the debate over research methods in jury research (Bornstein et al., 2017), our study suggests that virtual deliberations might be an adequate substitute for in-person deliberations, especially if the methodology includes pre-recorded interactions. Of course, more research is necessary on how virtual juries operate in the real world, but our quasi-experimental results that show modest effects converge with the generally positive experience reported by courts that turned to virtual juries during the pandemic. As the caseload of courts continues to increase, the benefits and ease that come from having the option to proceed virtually might well outweigh the risks.

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