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Courtroom Technology from the Judge's Perspective

by Fredric I. Lederer*

[I]t becomes quite clear that the courtrooms of this state cannot sit idly by, in a cocoon of yesteryear, while society and technology race towards the next millennium. Fortunately, the courtrooms of this state have not been idle, nor are they speeding at a reckless pace. Recent changes in the courtroom have included the use of audiotape stenographers as well as video transmission of first appearances, arraignments, and appellate oral arguments, just to name a few.

We recognize that there are generally costs associated with change. Nevertheless, technological changes in the courtroom cannot come at the expense of the basic individual rights and freedoms secured by our constitutions.¹

We live in a technological age, and the technology of everyday life is affecting case dispositions increasingly quickly. Technology came to our courthouses long ago, and jurisdictions throughout Australia, Canada, and the United States today are using case management systems and experimenting with electronic filing and electronic case information accessibility. Judges are using personal computers, including notebook machines on the bench and even the pocket-sized new generation of sub-laptop data retrieval systems such as the US Robotics PalmPilot. Now technology is coming to our courtrooms. Whether we consider extraordinary matters such as the Exxon Valdez or O.J. Simpson cases, the increasing number of technology-equipped courtrooms,² or just the anecdotal experiences of judges, blossoming judicial experience with and interest in courtroom technology is apparent. Indeed, during 1997-98 the Electronic Courtroom Project of the Administrative Office of the United States Courts has been evaluating different technologies in up to thirty different United States federal courtrooms. After all, "[t]he judicial system is the most expensive machine ever invented for finding out what happened and what to do about it,"³ and it is our responsibility to continually consider whether we might improve that system.

If nothing else, courtroom technology holds the promise of effecting significant direct and indirect financial savings. Anecdotal evidence suggests that electronically presented trials save from one-fourth to one-third of the time normally taken to try a similar case in a traditional fashion. But what of the judge's perspective? After all, the judge, especially the trial judge, holds a unique position with special responsibility. Although all participants in adjudication are at least theoretic-

ally united in some common systemic goals, it would be dangerously unrealistic for those considering the adoption of courtroom technology to ignore the disparate viewpoints held. However much litigants may want economy and rapidity, for example, they usually prefer most to win. Ethical lawyers may take a more systemic position, but are necessarily focused on the moment's case, its likely result, and the hope for further, successful, cases. The court administrator wishes for all good things, but is increasingly under financial pressure to accomplish today's needs, to say nothing of tomorrow's, with yesterday's budget. Ultimately it will come down to the judge, for who else is sufficiently concerned with both the short- and long-term need to do justice?

In an ideal world, adjudicative changes would improve the administration of justice by making it more certain, more accurate, faster, and less expensive. Before we can reasonably ask judges to sign on for what some reasonably fear to be a distracting high technology roller coaster ride, we ought to briefly examine some of the courtroom technologies now in use and ask fundamentally whether they can help the judge. This is not to suggest that changes that assist court administrators, lawyers, court reporters, litigants, jurors, citizens generally, and the like are unimportant. Quite the contrary. To hazard an analogy, the adjudicative process can be compared to an exploration voyage into an unknown sea characterized by questionable facts and ambiguous law.⁴ If we are to remodel, reequip, and reprovision the vessel, it would be foolhardy indeed not to ensure that the changes satisfy our captain's experienced judgment.

Our enhanced vessel is likely to come equipped with the latest in technology-based chambers and courtroom case record systems, document imaging and retrieval equipment, information and evidence review and presentation systems, and video and document-conferencing capabilities. To what extent can they prove useful to the judge?

TECHNOLOGY BASED COURT RECORD

Most of our appellate systems require verbatim records when serious cases are appealed. Judges have two interests in the court record: that it is accessible in a timely fashion for them to clarify factual and legal matters during trial, including the preparation of jury instructions, and that the record be accurate.⁵ Conscientious and competent judges are best supported by accurate trial records. The more accurate the record, the less likely that the case will be reversed. Indeed, one study by the National Center for State Courts has determined that comprehensive video records increase appellate affirmances.⁶ Current technology presents three alternative ways of making

more useful records: real-time; video, and digital audio.

Real-time transcription by trained stenographic court reporters permits accurate immediate access to the transcript. Judge and counsel each have access immediately to a draft quality transcript that can be privately and secretly annotated. Current technology even permits incorporation in the digital record of evidentiary images; we lack only a simple, commercially available system to do so. Instead, various firms now make this capability available for pretrial depositions. Real-time also easily permits the hard-of-hearing who can read to serve as judge, counsel, witness, or juror. Although real-time has only been available through stenographic court reporters, new voice recognition technology permits real-time production by stenomask reporters. No "open mike" automatic voice recognition systems exist and none are likely in the immediate future. Whether – and when – automated transcription will be available is speculative at best.

Video records are routinely used directly in the United States only in Kentucky. In the numerous other jurisdictions

that use videotape, the records are transcribed. Although their potential accuracy is of great significance,⁷ video records presently are not of great direct value to the judge, as a separate index must be made of the tape's contents.

Digital audio creates a more useful audio record than traditional analog tape recorder systems do. The new digital systems record on computer hard disk and can be backed up to other media. These systems are often characterized by a monitor (a person who needs far less training than a traditional court reporter) who can make text annotations, *i.e.*, a text index, which becomes part of the digital record and which can be searched in order to rapidly locate the nearest audio recording in time to that index item. Although entirely dissimilar to real-time stenographic reporting and far less useful, these systems are more useful to the judge than are traditional tape recoding systems. As these systems are now available for laptop computer systems, judges can now maintain their own electronic records.

LEGAL MATERIALS AT THE BENCH

Today's technology permits immediate access to legal materials from the bench. Whether based upon LEXIS or Westlaw, via direct connection or Internet, or via CD-ROM augmented by either of those services, the judge now has an enormous law library available.⁸ When the judge presides over a high technology courtroom, this permits the judge to engage in an immediate visual discussion of legal authority with counsel. Rather than relying upon notes, memory, or waiting for a book from the library, judge – or counsel – can display the actual authority on the appropriate monitor immediately in order to resolve any questions that may exist.

DOCUMENT IMAGING

Document imaging refers to the practice of "scanning" a document, photograph, or other image so that a computer picture of the image is stored for later retrieval. When scanned with optical character recognition, "OCR," the computer ver-



Defense counsel in a simulated trial delivers closing argument using a variety of in-courtroom technologies, while a deaf juror follows counsel by viewing a real-time transcript on the monitor.

Footnotes

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* Although I spent seven years as a limited jurisdiction trial judge and now preside over moot cases in Courtroom 21, I make no claim of significant judicial perspective.

1. Harrell v. State, 709 So. 2d 1364 (Fla. 1998); 1998 Fla. LEXIS 620, *21.
2. Of course, there have been many cases in which counsel brought equipment into the courtroom for the duration of the case. What is new is the "high technology courtroom," which we define as one with a high technology court record system, a high technology evidence presentation system, and soon, remote witness testimony capabilities. By May 1998, the Courtroom 21 Project had identified eight state high technology courtrooms, including some courts able to move equipment about different courtrooms. Although we do not have current exact figures, there are likely between fifteen and thirty federal courtrooms that now qualify. The number of state and federal facilities is increasing rapidly.
3. Judge Irving R. Kaufman, United States Court of Appeals for the Second Circuit, TIME, May 5, 1980, as quoted in JAMES B. SIMPSON, WEBSTER'S II NEW RIVERSIDE DESK QUOTATIONS 70 (1992).

4. We will not ordinarily equip our vessel, however, for a "five year mission to boldly go where no man has gone before." The nature of ordinary adjudication must place real resource constraints on us.
5. In theory, trial judges do their best at trial, and care not about any appeals. Being human, of course, and valuing their professional reputations, many judges do not wish to be unnecessarily reversed, and unnecessary reversals burden everyone when they occur.
6. JAMES A. MAHER, NATIONAL CENTER FOR STATE COURTS, DO VIDEO TRANSCRIPTS AFFECT THE SCOPE OF APPELLATE REVIEW? AN EVALUATION IN THE KENTUCKY COURT OF APPEALS (1990).
7. The primary difficulty in assuring accurate video records is assuring adequate audio. Proper courtroom audio is unusually difficult to install, and there are surprisingly few proper experts in the field.
8. As well as access to the entire world-wide-web. Of course, access can sometimes be distracting. Web access can prove highly tempting when faced with long-winded counsel.

sion can be searched by its word content just as lawyers and judges now regularly conduct electronic computer research. Many judges have tried cases in which counsel have used imaged documents, usually recorded on a CD-ROM disk and played back in court by computer. Anecdotal evidence indicates that judges have found this method of presenting evidence to be highly efficient and desirable. Lawyers are impelled to use imaging because it is an extraordinarily useful litigation support tool. Judges usually find that it decreases courtroom clutter and increases disposition speed. When imaged evidence is used electronically in the courtroom, our experience has been that a significant time savings results. This occurs because the usual counsel mechanics of obtaining a document and walking about the courtroom showing it to opposing counsel, the witness, and the judge, accompanied in a jury trial with jury publication, can all be eliminated in favor of controlled display on monitors. Of course, this not only requires installed technology display systems, but also sometimes requires that the trial judge require that counsel change long established patterns of evidence handling and presentation. Whether judges should encourage or require imaging in cases, including criminal cases, in which counsel do not intend to use it for litigation support is unclear. We believe, however, that an inexpensive court installed and operated system can be created that would permit imaging conducted solely for the judge's and clerk's convenience.⁹

EVIDENCE PRESENTATION SYSTEMS

The judge's primary responsibility is to ensure that justice is done under the law. Accuracy of fact-finding is thus a matter of real judicial concern. Anything that can improve the quality of that fact-finding should be of judicial importance. Current evidentiary display systems permit the easy and clear use and display of photographs, charts, documents, pictorial graphics, and computer-based material, including animations. Often instantaneous side-by-side comparisons, electronic underlining or circling of evidence is available, and whiteboard systems permit witnesses to sketch intersections and other matters with instant computer recording so that alteration by adverse witnesses doesn't destroy the evidence. New whiteboard systems permit witnesses and counsel to annotate or write upon documents, photographs, previously prepared computer graphics, and even live remote transmissions.

Judges and lawyers have known for centuries that "pictures are worth a thousand words," and there is general agreement that jurors retain far more information when it is presented visually as well as orally. Some testimony is almost useless without a visual component. The workings of a machine, interior of the body, or even a complicated street intersection cry



Plaintiff's counsel examines a witness by video-conferencing as the remote witness testifies in Norwegian (with AT&T LanguageLine translation), while United States District Judge Roger Strand looks on.

out for visual explanation. The new technologies, primarily DOAR Communicator/ELMO-type TV document camera systems that display photos and documents, and computer-based systems largely obviate the need for large (and expensive) courtroom demonstrative evidence exhibits. Further, Courtroom 21 experimentation confirms that the display systems significantly improve the speed of evidence presentation.

This is not to suggest that technological evidence presentation systems are trouble-free.¹⁰ Judges have always had to determine whether visual information is misleading or overly prejudicial, and technology-based evidence presentation can increase the number of and difficulty of such rulings. Further, there are any number of questions concerning how we display evidence that have inadequate scientific answers at present. Is a document or photograph unduly prejudicial because it is displayed on a 10-foot diameter screen in front of a jury? Do jurors react differently in some manner to material presented on a television or monitor rather than physically? There is much that we do not know. What we may know unscientifically is that evidentiary comprehension can improve and time in presentation can be saved.

VIDEO FIRST APPEARANCES, HEARINGS AND TESTIMONY

Throughout the world, courts are increasingly using remote video for judicial uses. Perhaps the most widespread use is remote testimony by victims in child abuse cases.¹¹ In the United States, the most common use is for remote first appearances in criminal cases. Defendants appear before magistrates via two-way television, thus saving the cost and risk of transportation to the courthouse. These uses are only the proverbial

9. This would obviate document storage.
 10. Sometimes apparently serious problems are actually unexpected routine behavior. In our last Laboratory Trial, Defense Counsel planned an opening to be augmented by Corel Presentation slides that included photographs of the key witnesses. When counsel went to use his computer mouse nothing happened, and counsel went into a rather real form of shock. After a brief moment (that I gather felt like forever) of indecision, counsel prepared to launch

into a traditional opening statement only to find the entire system live and functioning. Counsel had failed to realize that the computer had a power-saver feature that, having turned the system effectively off, took between 30 and 60 seconds to respond to mouse use.
 11. See *Maryland v. Craig*, 497 U.S. 836 (1990) (given case-specific finding of necessity, one-way video testimony by child victim didn't violate the Sixth Amendment)

tip of the iceberg. Courts have used two-way television for remote testimony in at least civil cases in Australia, Canada, and the United States. Indeed, the Federal Rules of Civil Procedure were amended in the United States on December 1, 1996, to permit the use of remote testimony when approved by the judge.¹² In one famous case, Judge Jeffrey Rosinek presided over a Florida criminal trial in which critical prosecution witnesses, husband and wife robbery victims, testified from Argentina via two-way satellite. One of the witnesses was suffering from cancer; neither was willing to return to Florida. The jury convicted, and the conviction has been sustained by both the intermediate appellate court and, more recently, the Supreme Court of Florida,¹³ despite legal challenges regarding witness confrontation.

12. In every trial, the testimony of witnesses shall be taken in open court, unless a federal law, these rules, the Federal Rules of Evidence, or other rules adopted by the Supreme Court provide otherwise. The court may, for good cause shown in compelling circumstances and upon appropriate safeguards, permit presentation of testimony in open court by contemporaneous transmission from a different location.

Fed. R. Civ. P. 43(a)

The Advisory Committee Notes to the amendment explain:

The requirement that testimony be taken "orally" is deleted. The deletion makes it clear that testimony of a witness may be given in open court by other means if the witness is not able to communicate orally. Writing or sign language are common examples. The development of advanced technology may enable testimony to be given by other means. A witness unable to sign or write by hand may be able to communicate through a computer or similar device.

Contemporaneous transmission of testimony from a different location is permitted only on showing good cause in compelling circumstances. The importance of presenting live testimony in court cannot be forgotten. The very ceremony of trial and the presence of the factfinder may exert a powerful force for truth-telling. The opportunity to judge the demeanor of a witness face-to-face is accorded great value in our tradition. Transmission cannot be justified merely by showing that it is inconvenient for the witness to attend the trial.

The most persuasive showings of good cause and compelling circumstances are likely to arise when a witness is unable to attend trial for unexpected reasons, such as accident or illness, but remains able to testify from a different place.

Contemporaneous transmission may be better than an attempt to reschedule the trial, particularly if there is a risk that other—and perhaps more important—witnesses might not be available at a later time.

A party who could reasonably foresee the circumstances offered to justify transmission of testimony will have special difficulty in showing good cause and the compelling nature of the circumstances. Notice of a desire to transmit testimony from a different location should be given as soon as the reasons are known, to enable other parties to arrange a deposition, or to secure an advance ruling on transmission so as to know whether to prepare to be present with the witness while testifying.

No attempt is made to specify the means of transmission that may be used. Audio transmission without video images may be suffi-

cient in some circumstances, particularly as to less important testimony. Video transmission ordinarily should be preferred when the cost is reasonable in relation to the matters in dispute, the means of the parties, and the circumstances that justify transmission. Transmission that merely produces the equivalent of a written statement ordinarily should not be used.

Safeguards must be adopted that ensure accurate identification of the witness and that protect against influence by persons present with the witness. Accurate transmission likewise must be assured. Other safeguards should be employed to ensure that advance notice is given to all parties of foreseeable circumstances that may lead the proponent to offer testimony by transmission. Advance notice is important to protect the opportunity to argue for attendance of the witness at trial. Advance notice also ensures an opportunity to depose the witness, perhaps by video record, as a means of supplementing transmitted testimony.

Other possible justifications for remote transmission must be approached cautiously. Ordinarily depositions, including video depositions, provide a superior means of securing the testimony of a witness who is beyond the reach of a trial subpoena, or of resolving difficulties in scheduling a trial that can be attended by all witnesses. Deposition procedures ensure the opportunity of all parties to be represented while the witness is testifying. An unforeseen need for the testimony of a remote witness that arises during trial, however, may establish good cause and compelling circumstances. Justification is particularly likely if the need arises from the interjection of new issues during trial or from the unexpected inability to present testimony as planned from a different witness.

Good cause and compelling circumstances may be established with relative ease if all parties agree that testimony should be presented by transmission. The court is not bound by a stipulation, however, and can insist on live testimony. Rejection of the parties' agreement will be influenced, among other factors, by the apparent importance of the testimony in the full context of the trial.

13. *Harrell v. State*, 709 So. 2d 1364 (Fla. 1998). See also *United States v. Gigante*, 971 F. Supp. 755 (E.D.N.Y. 1997) (RICO case witness authorized to testify by television).

14. The Courtroom 21 Project uses 384K, six channel Tandberg equipment. This ISDN system uses the equivalent of six telephone lines. Ordinarily we consider a lesser video connection to be unacceptable for in-court use. Four-channel use is likely to be fine for other purposes. As a rough rule of thumb, telecommunications charges equal the cost per minute of an ordinary long distance call multiplied by the number of phone line equivalents used.

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Witness is impeached during testimony before the jury with computer presented multi-media deposition record, which shows text transcript on the monitor along with synchronized audio and video.

21 staff, determined by experiment in 1997 that video may be especially useful in judge-conducted alternative dispute resolution. Inexpensive video communications also enable judge-to-judge and court administration communications.

Yet, again, we must concede that the judge, concerned above all with accuracy of fact-finding, must have a substantial concern. What are the real *human* consequences of remote video communications? Are remote trial witnesses, for example, more or less credible in actuality *and* perception than witnesses in the courtroom? Four separate experiments conducted in conjunction with the Courtroom 21 Project consistently show that jurors perceive remote witness testimony as being neither better nor worse than in-court testimony. Unfortunately, we have no data as to whether remote witnesses are more or less likely to lie than in-court witnesses.

What we do know about video conferencing is that the convenience and cost savings are substantial. Ultimately, we expect remote testimony, from courthouse to courthouse, to be routine, if only because of the cost savings. Whether it should actually be permitted will rest on judicial decisions dealing with fundamental questions of human behavior.

CONCLUSION

My intent in this brief article has been to briefly review courtroom technology from the judge's special perspective. As is all too often the situation, we can say with certainty that technology is not a panacea for the judge. Initially we would be wise to remember Chief Justice Burger's reflection:

"Concepts of justice must have hands and feet . . . to carry out justice in every case in the shortest possible time and the lowest possible cost. This is the challenge to every lawyer and judge in America."¹⁵

Yet, at the same time there are other and weightier considerations: "A good and faithful judge prefers what is right to [what is] expedient."¹⁶ And as much as we might sometimes care to play ostrich, any one familiar with technology would be forced to concur with C.P. Snow's observation: "Technology . . . is a queer thing. It brings you great gifts with one hand, and it stabs you in the back with the other."¹⁷

Accordingly, we are left with the judge's ongoing responsibility to assure justice. We know that technology *can* improve adjudicative accuracy while increasing disposition speed and effecting potentially substantial economies. Yet we can also guarantee that courtroom technology will not be trouble-free. Rather than justifying those few judges who would much prefer to keep the computer and television outside the courtroom, however, this real and important concern justifies only the same type of individual, case-by-case concern that has characterized implementation of every evidentiary and procedural change. Our exploration vessel will not plunge starward at warp speed. Rather, we will probe the legal and factual sargasso seas with the type of careful analytical progress customary to judicial probes. Ultimately, technology will provide extraordinarily useful tools for our judicial captains, but it will be imperative that they play a major role in the selection and implementation of those tools.



Fredric Lederer is the Chancellor Professor of Law and Director of Courtroom 21 at the William & Mary School of Law. The Courtroom 21 Project, "The Courtroom of the 21st Century Today," includes in the McGlothlin Courtroom what is believed to be the world's most technologically advanced trial and appellate courtroom. Located in Williamsburg, Virginia, the Courtroom 21 Project is a joint project of the William & Mary Law School and the National Center for State Courts. Professor Lederer will be making a demonstration presentation of Courtroom 21 technology at the American Judges Association educational conference on August 31 in Orlando.

15. Chief Justice Warren E. Burger, Speech to the American Bar Association, October 1, 1972, as quoted in JAMES B. SIMPSON, WEBSTER'S II NEW RIVERSIDE DESK QUOTATIONS 70 (1992).

16. Carmina Horace, *et al.*, THE QUOTABLE LAWYER 142 (1986).

17. C.P. Snow, N.Y. TIMES, March 15, 1971, as quoted in JAMES B. SIMPSON, WEBSTER'S II NEW RIVERSIDE DESK QUOTATIONS 158 (1992).