How Technological Advances in the Courtroom Are Changing the Way We Litigate[†]

Deborah D. Kuchler
Leslie C. O'Toole

I.
Introduction

Perhaps Victor Hugo said it best: "An invasion of armies can be resisted; but not an idea whose time has come."[1] To be sure, computer know-how in the modern world is no longer the exclusive provenance of teenagers and "geeks." Opposing counsel, clients, jurors, and judges are familiar with, and coming to expect, high tech displays in all areas of litigation—including the courtroom. This proliferation of technology in the courtroom is not only affecting the processes of trial, such as the presentation of evidence, but is changing the very way that we practice law.

In this article we describe some of the modern technologies that are becoming more commonplace in the courtroom. Along with discussions of the advantages and disadvantages, we explore ways in which these technologies are transforming the nature of litigation. In addition, we weave in practice tips for avoiding possible pitfalls.

II.
Background

In 1998 the Administrative Office of the United States Courts launched a pilot program to fund advanced technology for courtrooms. This effort included monitors, document cameras,

---

[†] The authors thank Lannie Gwartney, of Abbott, Simses & Kuchler, and Kevin Sobel-Read, of Ellis & Winters, for their invaluable contributions to this article. Submitted by the authors on behalf of the FDCC Trial Tactics, Practice and Procedures Section.

[1] Bartlett's Familiar Quotations, 427:18 (16th ed. 1992).

Deborah D. Kuchler is a shareholder with the law firm of Abbott, Simses & Kuchler. She graduated cum laude from the University of New Orleans with a B.A. degree in education in 1980. Ms. Kuchler attended Loyola Law School in New Orleans, Louisiana at night while working full time as a natural gas contract administrator and gas supply representative for an interstate natural gas pipeline company. She was a member of Loyola Law Review and graduated in 1985 in the top 10% of the combined day and night school class. Ms. Kuchler served from mid-1985 to 1987 as law clerk for the Honorable Patrick J. Carr in the United States District Court for the Eastern District of Louisiana. She is admitted to practice in Louisiana, Mississippi and Texas and is a member of the Louisiana, Mississippi and Texas State Bar Associations, the Federation of Defense and Corporate Counsel (FDCC), Lawyers for Civil Justice (LCJ), the Defense Research Institute (DRI), and the American Chemistry Association (ACA). Ms. Kuchler manages dockets of complex civil litigation in Louisiana, Mississippi and Texas involving the defense of chemical and particulate exposures (including dioxins and dioxin-like compounds, asbestos, silica, kaolin, vinyl chloride, volatile organic chemicals and benzene), Pharmaceutical Litigation (including hemophilia AIDS, Hepatitis C, anti-coagulation medications, and cholesterol-lowering treatments), Mass Tort Litigation (principally relating to chemical releases into air and groundwater), Product Liability (including firearms), Premises Liability, and Hearing Loss.

video-conferencing capabilities, and internet connections. Many federal district courts have incorporated the new technologies, and state courts are following suit. The results, however, are far from uniform. In spite of substantial technological progress in many courtrooms, funding and other barriers have kept some jurisdictions from keeping up. For example, a 2006 survey of sixty county courthouses in Pennsylvania found that in terms of technology over a third possessed only a cart with a television and VCR or DVD player, or otherwise considered themselves to be "technology-free."[2]

---

[2] Lisa L. Granite, *Technology Gradually Filtering Into Pennsylvania's Courtrooms*, Pennsylvania Lawyer, 28-DEC Pa. Law. 40, 41 (November/December 2006). Consequently, it is imperative for a lawyer who intends to rely on technology at any given hearing or trial to determine in advance the technological capabilities of the relevant courtroom.

Leslie C. O'Toole obtained her undergraduate degree from Brown University (A.B., Magna Cum Laude, 1982) and her J.D. from the University of North Carolina (with High Honors, 1986) where she was a Morehead Law Fellow. Ms. O'Toole was a member of the Order of the Coif, and she served as Research Editor of the North Carolina Law Review. Her practices in the areas of civil litigation, focusing on products liability (including drugs and medical devices), medical malpractice, and commercial litigation. Ms. O'Toole has been part of a regional and trial counsel team in the breast implant litigation. Her litigation practice includes the representation of pharmaceutical companies, product manufacturers, health care practitioners and institutions, engineering companies and other businesses. She also has been retained by corporate boards to assist in internal investigations. Ms. O'Toole has given numerous presentations on Daubert, trial skills, company documents, and other topics for organizations such as the North Carolina Association of Defense Attorneys, DRI, the FDCC, the North Carolina Bar Association, and the National Institute for Trial Advocacy.

III.
OVERVIEW OF SEVERAL KEY MODERN TECHNOLOGIES

A. *Evidence Presentation System*

At the heart of the electronic courtroom is the evidence presentation system. An evidence presentation system enables the lawyers to show jurors, the judge, witnesses, and other counsel, documents and exhibits on a network of monitors. In a fully wired courtroom, screens will be located at the witness stand, jury box, bench, each counsel table, as well as near the court reporter and courtroom deputy. Large courtroom monitors are also present in some courtrooms to allow the public to follow the proceedings.

The evidence presentation system is usually housed in a console, or media cart, located near the podium. It includes a document camera used to display exhibits and three-dimensional objects. The console also might contain a video cassette recorder, audio tape recorder, and printer.

Laptop computers can be plugged into the console to allow any software program to be presented on the courtroom monitors. A lawyer can control the presentation of evidence

from the presentation console in a wired courtroom. Additionally, by plugging a laptop into the console's interface ports, other computer-generated evidence can be presented, such as digitally stored documents and PowerPoint presentations.[3] PowerPoint slides can be used for displaying charts, testimony, and exhibits.

Video clips of depositions can be edited to flow seamlessly, eliminating areas of lawyer discourse and objections as well as testimony that the trial lawyer does not wish to present. Video clips of possible impeachment testimony can be prepared in anticipation of situations in which they may prove useful, and are more effective and less time-consuming than fumbling with paper transcripts.[4] The synchronized transcript can be shown simultaneously with a video deposition excerpt. In addition, a split screen may be used to display a relevant or contradictory document alongside a witness's deposition testimony.[5]

In an electronic courtroom the judge also has a "kill switch" to immediately turn off the screens, thus excluding evidence that the judge finds improper. In other situations, judges have the option of using the presentation equipment itself, for example, conducting *voir dire* with PowerPoint. Judges may have a touch screen control panel to operate all aspects of the evidence presentation cart, including the ability to override lawyers' use of the focus and zoom features. Judges can switch among the various document cameras, whiteboard, and laptops, and can control video conferencing equipment.[6]

When used properly, the evidence presentation system is generally much faster, more efficient, and provides greater clarity than the technologies that it replaces, such as the blackboard, blow-up board exhibits, overhead projector, easels, and poster boards. Moreover, the evidence presentation system allows attorneys to manipulate, enlarge, emphasize, and highlight select portions of an exhibit for the jury's elucidation. However, the "old-fashioned" methods of evidence presentation may still have a place in the trial strategy. For example, easels may remain useful for several key exhibits that the trial lawyer wants displayed for a longer time.

B. *Bar Codes*

Exhibits as well as video clips can be bar-coded to allow instant viewing by scanning the barcode from an index. Original exhibits are scanned and imported into the system and each exhibit is assigned a bar code. All of the bar codes are recorded, with an accompany-

---

[3] Michael E. Heintz, *The Digital Divide and Courtroom Technology: Can David Keep Up With Goliath?* 54 Fed. Commun. L.J. 567 (2002).

[4] Fanelli v. Centenary College, 211 F.R.D. 268 (D.N.J. 2002).

[5] Michael P. Kenny & William H. Jordan, *Trial Presentation Technology: A Practical Perspective*, 67 Tenn. L. Rev. 587 (Spring 2000).

[6] Mark W. Bennett, Chief Judge, U.S.D.C. N.D. Iowa, *High-Tech Justice: A View From the Federal Bench on Courtroom Technology*, 30 No. 2 Litigation 3 (Winter 2004).

ing description, on a separate index or notebook. When the exhibit is needed at trial, the attorney swipes the index with the bar code wand, and the system retrieves the exhibit and projects it onto the courtroom monitors.

The speed and ease of this technology over older methods, such as trial notebooks and videotape collections, is undeniable in document-intensive cases. However, in a trial that will require only a few documents or a small amount of video evidence, the expense may not be justified.

C. *Video-Conferencing/Video-Argument*

Video-conferencing is used to permit off-site witnesses to offer "live" testimony during trial. It is also being used in federal appellate proceedings to hear oral arguments without the need for all participating judges and lawyers to be physically present.

This remote participation can be useful for the presentation of experts and can result in significant time and cost savings – although the trial lawyer must, of course, weigh any cost savings against the persuasiveness of live testimony.[7] Video-conferencing is also useful to allow the presentation of testimony of other third-party witnesses who are outside the court's subpoena power and unwilling to attend the trial in person. Of course, the court's approval of this method must be sought in advance of the trial.

Moreover, video-conferencing brings with it practical considerations. For one, any documents that the witness will need to review must be sent to the witness in advance. In addition, counsel who is intending to interview a witness via video-conferencing is encouraged to designate beforehand the person who will initiate the call that will establish the connection. A test call is also strongly advised. Lastly, the attorney performing the direct examination should create a record regarding the witness's location. For instance, the examining attorney might want the witness to identify any other individuals who are present in the room with the witness and instruct the witness to alert counsel if anyone else enters.[8]

When using video-conferencing, one must also take into account a variety of considerations relating to the technology itself. Although seemingly minor, these can have a tremendous effect on a witness's presentation and on the flow of the testimony. Some of these considerations include:

---

[7] Fredric I. Lederer, *Technology-Augmented Courtrooms: Progress Amid a Few Complications, or the Problematic Interrelationship Between Court and Counsel*, 60 N.Y.U. Ann. Surv. Am. L. 675 (2005).

[8] National Institute of Trial Advocacy and the Federal Judicial Center, *Effective Use of Courtroom Technology: A Judge's Guide to Pretrial and Trial,* available at www.fjc.gov/public/pdf.nsf/ lookup/CTtech00.pdf/$file/CTtech00.pdf (hereafter "FJC Guide").

- Will one use a picture-in-picture format?
- Where the cameras should be placed?
- How much of the witness's body will be shown on the screen?
- Will the witness be allowed to view any of the courtroom proceedings that precede the witness's testimony?[9]

As noted above, video-participation applies not only to witnesses, but also to judges.[10] At this time, several appellate courts allow judges to appear remotely. A remote appearance of course has the potential to greatly change the dynamic of a proceeding. At a death-penalty appeal before the Ninth Circuit Court of Appeals earlier this year, for example, the only empty seats in the courtroom were those of the judges—all three judges of the panel heard the appeal remotely.[11]

D. *Electronic Display Boards*

A magnet board is an interactive touch board system. The lawyer may approach it and touch with an electronic pen or even a finger. The board is connected by a cable to a laptop computer at the counsel table. It can be erased with an electronic eraser like on its traditional counterpart, a chalkboard. The advantages of neatness, clarity, speed, and ease of erasure are undeniable.

An electronic white board can be used to project exhibits, which then can be marked by an attorney or witness by use of a digital annotating system or touch screen monitor. The image with the overlay markings may be printed and introduced into evidence.

E. *Real Time Transcription*

Real-time transcription is a system that allows a court reporter's transcription to be viewed in "real time," that is to say, as it is transcribed. The real-time transcription can be shown on monitors for use by the judge and the lawyers, and sometimes it is even displayed to the jury or to witnesses. In some systems the lawyers can make notes in the margins as the testimony scrolls by. This may be useful in marking testimony on which cross-examination or follow-up may be desired.

---

[9] *Id.*

[10] With this type of technology available, some commentators have gone so far as to imagine a "virtual courthouse" where *all* of the participants take part remotely. *See*, *e.g.*, Gordon Bermant, *The Development and Significance of Courtroom Technology: A Thirty-Year Perspective in Fast Forward Mode*, 60 N.Y.U. Ann. Surv. Am. L. 621 (2005).

[11] Henry Weinstein, *Court's Use of Video is Facing Review*, L.A. Times 1, Jan. 16, 2007.

Other advantages of real-time transcription are that it allows objectionable testimony and statements placed on the record to be reviewed instantaneously. Also, when judges have real-time displays at the bench, they can free up time from taking notes in order to focus in more detail on witnesses, counsel, and the jury.

In other situations, real-time transcription may pose problems, such as when the transcription is displayed on a witness's monitor during cross-examination. Although this access to the transcript can be helpful when the witness is an expert and extensive hypotheticals are involved, it can also disrupt "the classic cross-examination dynamic between lawyer and witness."[12]

F. *Software Packages*

Software is available for both trial and pre-trial document management. Images, including documents and deposition transcripts, are scanned and loaded into a database. Software programs are used for searching, displaying, highlighting text, and displaying exhibits side by side. The attorneys can also place notes in the margins concerning exhibits and testimony, which can be accessed later or by other members of the trial team.[13]

G. *Extraordinary/Futuristic Technologies*

Other technologies are being developed that may someday make an appearance in the courtroom. For example, three dimensional virtual reality displays are possible using a head-mounted device that permits a viewer to witness computerized representations as if he or she were physically present at the site of the display. Similarly, holograms can project a three-dimensional image through use of laser beams.

In any event, there are special evidentiary issues involved in computer-generated exhibits that result in a manipulation of the content of the evidence, such as computer simulations and animations.[14] Under the federal rules, for instance, the practitioner should ensure that this type of exhibit does not run counter to relevance requirements under Rules 401 and 402; authentication requirements under Rule 901(a), (b)(1), and (b)(9); the "Best Evidence" Rules 1001-1003 and 1006; hearsay Rules 801-807; and the "Scientific Evidence" Rule 702.[15]

---

[12] FJC Guide, *supra* note 8.

[13] The most popular legal software systems include: Sanction (www.verdictsystems.com); Trial Director (www.indatacorp.com); Live Note (www.livenote.com); Visionary (www.freevisionary.com); and Summation (www.ctsummation.com).

[14] Fred Galves, *Where the Not-So-Wild Things Are: Computers in the Courtroom, the Federal Rules of Evidence, and the Need for Institutional Reform and More Judicial Acceptance*, 13 Harv. J.L. & Tech. 161 (Winter 2000).

[15] *Id*.; *see also* FJC Guide, *supra* note 8.

IV.
Implications of Technology in the Courtroom

A. *As Relates to Theory*

The introduction of increasingly sophisticated technology into the courtroom is transforming the process of litigation. These transformations can be both observed and felt throughout the trial process, beginning with the electronic filing of documents through the possibility of submitting appeals in so-called digital format briefs which contain hyperlinks to every legal citation and evidentiary reference that a party relies upon.

More important than simple changes in *procedure*, however, are the ontological transformations in *substance*. These transformations stem in large part from the increase at trial—made possible by new courtroom technology—of lawyers' reliance on images, graphs, animations, and other visual aids. As these visual aids replace what once would have been only the attorney's spoken words, the perception of the information is altered. In other words, the relationship that an individual has to spoken words is different than the one he or she has to images.[16] "When judges and jurors scrutinize photographs, videos, computer animations and other graphic materials (such as charts, graphs, and maps) used as demonstrative evidence as they strive to reach decisions, they are doing something very different from what they are doing when they listen to testimony or read documents."[17]

This difference is in part due to two related concepts. On the one hand, there is diverse symbolic and cultural metadata in every picture that does not exist in text.[18] On the other, pictures contain a host of meanings that are left "unsaid,"[19] and as such, each viewer—judge or juror—will fill in the "blanks" with his or her own personal meanings.

In a similar way, one observer has noted that "courtroom display technologies shift the criteria by which effective communication is assessed by fact-finders."[20] One consequence of this shift in communication criteria can be that "[e]ffectiveness may be determined by the context rather than by factors intrinsic to the technical details."[21] As a result of all of these changes, lawyers must in fact "strategize their cases differently."[22]

---

[16] *See*, *e.g.*, Richard K. Sherwin, Neal Feigenson, & Christina Spiesel, *Law in the Digital Age: How Visual Communication Technologies are Transforming the Practice, Theory, and Teaching of Law*, 12 B.U. J. Sci. & Tech. L. 227, 235 (Summer 2006) (wherever lawyers use images, "different possible relationships between elements can emerge that remain invisible when those same elements are described only verbally. This is because visual spatial arrangements are different from linear linguistic sequences.").

[17] *Id.* at 239.

[18] *See*, *e.g.*, *id.*

[19] *Id.* at 261.

[20] Bermant, *supra* note 10, at 622.

[21] *Id.*

[22] Sherwin, *supra* note 16 at 235.

Technology is also affecting the appeal process. For one, a "paper record is an inadequate mechanism for showing appellate judges what actually happened in technology-augmented trial level litigation."[23] In addition, with the increase in video records, appellate judges have unprecedented access to the nuances of witness behavior and other subtleties that were previously in the sole province of the trial judge.[24] A study published in 1990 found in fact that appellate courts were more likely to affirm when a case contained video records rather than consisting only of traditional transcripts.[25]

As a related matter, a significant reason for an appellate court's deference to a trial court is based on the assumption that the trial judge, who is able to view the whole of a witness's demeanor, can evaluate the non-verbal features of the witness's testimony. But as technology provides appellate judges with more and more details of this demeanor and other multi-sensory aspects of the trial itself, novel questions of appellate practice become possible:

- Will deference to the trial court no longer be necessary?
- Will the scope of judicial review change in other ways?[26]

C. *As Relates to Practice*

Jury trials provide several excellent examples of the changes being forged by technology in the courtroom. First, the very process of trial preparation is changing. The act of "assembling and designing the visual presentations to be shown [at trial] forces lawyers to prepare their cases earlier and more thoroughly than they would otherwise."[27] Instead of a few key blow-ups, counsel can now switch between digital images at trial, including enlargements and highlights, with the click of a button. A trial lawyer must therefore walk a fine line. While not wanting to overwhelm a non-tech-savvy judge or juror, the lawyer must also be sure to keep everyone's attention, especially those on the jury who, having watched years of lawyer shows on television, have come to expect a faster paced and more engaging litigation style.

---

[23] Fredric I. Lederer, *The Effect of Courtroom Technologies on and in Appellate Proceedings and Courtrooms*, 2 J. App. Prac. & Process 251, 263 (Summer 2000).

[24] *Id.* at 253 ("Text transcripts present, of course, only a small part of what actually happened at trial. Neither voice nor image is present, and their absence can be extraordinarily misleading.").

[25] *Id*.

[26] *Id*.

[27] Sherwin, *supra* note 16, at 235.

Next, technology affects the centuries' old process of *voir dire*. The use of PowerPoint presentations and the display of images of evidence on monitors cause concerns that were not present before. When selecting a jury, counsel must now evaluate whether particular jurors will be savvy enough to follow the technical presentation of arguments and evidence.[28] At the same time, in a trial requiring extensive graphic and video displays, something as seemingly trivial as color-blindness could greatly impinge on a juror's ability to discern elements of a pie-graph or to make out other details flashed onto the screens.[29]

Furthermore, although the preparation time for trial might in fact be longer, the efficiency provided by technology generally decreases the length of the trial itself. This acceleration has many causes. For one, exhibits can be more effectively organized and presented. Similarly, in the words of one commentator, "[i]t takes a lot less time and mental effort to see a picture than to read [or hear] a thousand words."[30]

Courtroom technology also provides many other time-saving devices. For instance, deposition transcripts can be searched to locate any given statement within seconds; exhibits can be instantly annotated on a monitor screen,[31] and the judge can key-cite a case before counsel has even had time to hand up the hard copy.[32] Moreover, a white noise generator can be used to mask conferences at the bench, sparing the jury from multiple trips in and out of the courtroom.[33]

As to the presentation of exhibits and illustrative aids, the present digital age poses novel challenges due both to the ease with which images can be manipulated and the range of possible manipulation. Prior to any technological display, therefore, a court may require representations from counsel relating to the nature of the equipment as well as the subject of the exhibits/illustrative aids.[34] Similarly, any electronic display brings with it the possibility of particular objections. Because of their potentially prejudicial nature, those exhibits and illustrative aids that contain motion or sound are particularly likely to draw objections

---

[28] A juror who, for example, is not computer savvy and does not watch much television may need more time to digest the information that counsel flashes onto the courtroom monitors. *See* FJC Guide, *supra* note 8, at 145.

[29] FJC Guide, *supra* note 8.

[30] Sherwin, *supra* note 16, at 243.

[31] W. Perry Zivley, Jr., *Understanding and Using Courtroom Technology in the New Harris County Civil Courthouse*, Houston Lawyer, 44-FEB Hous. Law. 30 (Jan./Feb. 2007).

[32] *See also* Roger A. Hanson, *American State Appellate Court Technology Diffusion*, 7 J. App. Prac. & Process 259, 282 (Fall 2005) (noting that appellate justices can now "communicate in real-time fashion with their respective staffs during oral argument, thereby having access to legal research tools and input from staff members pertinent to questions the justices pose (e.g., what is the exact statutory language being addressed during argument?").

[33] *See*, *e.g.*, Zivley, *supra* note 31.

[34] *See*, *e.g.*, FJC Guide, *supra* note 8.

from opposing counsel and restrictions by the court.[35] Moreover, unlike the "old" days when trial lawyers wrote on a blackboard, giving opposing counsel ample time to formulate and voice objections, today's technology allows an attorney to present extensive information on a screen in rapid-fire format.[36] This fast-flowing format not only speeds the presentation of evidence but also changes the dynamic of many of the ensuing objections.

Finally, courtroom technology can affect the appeal process as well.[37] One transformative element is the high-technology brief, also called the digital format brief. Such briefs "consist not only of the brief's text, but also all referenced law—case, statutory, and rule—as well as the trial transcript, the exhibits, and appropriate ancillary papers."[38] Each of these is available by clicking on simple hypertext links in the brief. Not all courts accept digital format briefs yet, however, and those that do often subject the filer to two requirements: "(1) notice to the other side of the intent to file in this format; and (2) an accompanying paper copy."[39] In any event, the level of technology that a lawyer uses at trial is proportional to the effort necessary to create a digital brief on appeal.[40]

V.
Courtroom Technology in Action: Advantages And Disadvantages

A. *Advantages*

In addition to reducing the amount of time necessary for trial, there are of course many other advantages to making use of modern technology in the courtroom. The effects on jurors and juror comprehension is one of the most significant such areas. Indeed, because of the general prevalence of technology in other spheres of jurors' lives, they are "increasingly immune to confusion by the encroachment of technology into heretofore primitive communication zones such as the jury room."[41]

---

[35] *Id*.

[36] *Id*.

[37] *See*, *e.g.*, Fredric I. Lederer, *The Potential Use of Courtroom Technology in Major Terrorism Cases*, 12 Wm. & Mary Bill Rts. J. 887 (April 2004).

[38] Lederer, *supra* note 23, at 262; *see also* FJC Guide, *supra* note 8.

[39] FJC Guide, *supra* note 8, at 215.

[40] *Id*. ("Real-time reporting, digitized video of depositions, and scanned images used as exhibits are important factors in making possible the speedy and inexpensive preparation of a brief in digital format.").

[41] Verizon Directories Corp. v. Yellow Book USA, Inc., 331 F. Supp. 2d 136, 142 (E.D.N.Y. 2004); *see also* Zivley, *supra* note 31, at 32 ("some jurors might want to see a document on a computer screen because they are accustomed to looking at information on a computer screen during work.").

In particular, with devices such as the evidence presentation system, attorneys are able to instantaneously place visual and audio evidence before the entire courtroom, including the judge, jurors, opposing counsel and onlookers.[42] As noted, this use of visual and audio aides can help to maintain the jury's interest by quickly presenting and coordinating the exhibits to the witness on the stand. In addition, memory is improved by showing and not just telling—retention has been found to be increased significantly following the presentation of video evidence.[43] Nevertheless, the exact relationship between these techniques and jurors' comprehension and judgment is still subject to ongoing study and debate.[44]

Modern technologies are especially useful in document intensive cases. The ability to quickly and efficiently bring up documents and video clips speeds up trial time immensely. Judges and trial lawyers who have participated in the high-tech "Courtroom 21" project of the Federal Judicial Center have estimated that it saves one fourth to one third of traditional trial time.[45]

Judges can see witnesses and evidence more easily, as well. Judges have also found that trials are more interesting and efficient, as jurors get to see the evidence as it is presented.[46] As a result, some argue that "the quality of justice is significantly improved by a dramatic increase in real-time juror comprehension."[47]

B. *Disadvantages*

Perhaps the most obvious disadvantage of technology in the courtroom is that *it can fail*.[48] The trial lawyer should therefore always be prepared to present his or her case without

---

[42] One commentator has suggested that a by-product of this ability is that it assists the media in understanding a given case, increasing the accuracy of media reports. Lederer, *supra* note 37. Note also that several state courts now offer web-casts of oral argument, including "both live video and audio transmissions and archives of past arguments." Hanson, *supra* note 32, at 276. Such web-casts open up previously unthinkable possibilities of public access to the courts.

[43] Heintz, *supra* note 3. *See* J. Bradley Ponder, *But Look Over Here: How the Use of Technology at Trial Mesmerizes Jurors and Secures Verdicts*, 29 Law & Psychol. Rev. 289 (Spring 2005).

[44] Elizabeth C. Wiggins, *What We Know and What We Need to Know About the Effects of Courtroom Technology*, 12 Wm. & Mary Bill Rts. J. 731 (April 2004); Hanson, *supra* note 32 (noting that many technological innovations have been put into effect to solve idiosyncratic needs without systematic analyses of successes). Some evidence may in fact be *more* effective if *not* presented electronically. *See* Alan F. Blakley, *Making the Most of Technology*, 52-AUG Fed. Law. 14 (August 2005).

[45] Lederer, *supra* note 7, at 676.

[46] Bennett, *supra* note 6.

[47] *Id*.

[48] The disadvantages discussed here relate mostly to the practicing trial attorney. A host of other possible disadvantages also exist, however, or at least, potential disadvantages. These include: in what format should electronically filed briefs and evidence be stored at the courthouse, and how long will that electronically stored material last? *See*, *e.g.*, Lederer, *supra* note 23.

advanced technology if technical difficulties are encountered. For example, it is wise to come prepared by having an extra laptop with identical data. If using a digital document database, the document camera housed in the evidence presentation console may be used as a back up for documents that are scanned incorrectly or because of other computer problems.[49] One should always be prepared: some judges may become impatient with technological glitches and order trial to proceed without it.[50]

Where technology is used, there is a risk that the jury may lose confidence in the message, or that the technology may appear overwhelming or too slick and obscure the message. There may also be a perception of inequity between the parties if one side is prepared with PowerPoint slides and electronic chalkboards while the opponent is using Magic Markers and poster board.[51] However, the public is becoming much so more tech-savvy and used to the world of fast, slick messages, that there is a countervailing risk without technology of looking unprepared, not to mention dull.[52] If the trial lawyer has any concerns that technological feats will seem too slick or unfair to the opponent, he or she may choose to establish a balance by using simple graphics.

VI.
Conclusion

Along with the so-called "CSI effect," where jurors have come to expect quick, infallible and glitzy forensic science, they have also grown accustomed to visual and auditory aids that entertain, mesmerize, and capture the imagination. Video games are becoming increasingly realistic—not to mention alternate virtual realities like Second Life—and even the technologically-impaired can use a touch screen to scan their own groceries and check out electronically in the supermarket. These changes in our society are bringing with them changes to the way we practice law. In fact, technology in the courtroom may be only the tip of the iceberg. When today's kindergartners graduate from law school, one can only imagine what technology they will already be taking for granted—and how that ever-developing technology will continue to transform the legal landscape.

---

[49] Jordan, *supra* note 5.

[50] Sharon Nelson & John Simek, 31 No. 5 ABA Law Prac. 24 (July/Aug. 2005).

[51] Galves, *supra* note 14.

[52] *See* Bermant, *supra* note 10.