

# Digital Visual Evidence

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Although traditional visual aids as simple as chalkboard markings, flip charts, X-rays, 3D models, maps, diagrams, and photographs have been used for quite some time to help jurors understand evidence, advances in both science and technology have not only increased their use in everyday life, but in the legal arena. Law enforcement agencies are making increasing efforts to visually preserve crime scenes and physical evidence such as DNA, fingerprints, blood spatters, and bite marks—and these same forensic techniques need to be explained in laymen’s terms to juries in criminal trials. It is also now customary to see digital visual displays used to recreate crime scenes, car accidents, and airplane crashes, as well as to help jurors in civil trials visualize patent infringements related to inventions or equipment malfunctions. In addition, digital evidence continues to be the subject of extensive discussion in judicial opinions<sup>1</sup> and legal and popular commentary.<sup>2</sup>

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1. *State v. Swinton*, 847 A.2d 921 (Conn. 2004); *see also Commonwealth v. Serge*, 896 A.2d 1170 (Pa. 2006).

2. *E.g.*, Mina Kimes, *Courtroom Cartoons Help Win Legal Fights*, CNNMoney.com (2008), [http://money.cnn.com/2008/09/02/smallbusiness/courtroom\\_cartoons.fsb/](http://money.cnn.com/2008/09/02/smallbusiness/courtroom_cartoons.fsb/), accessed September 3, 2008; Jennifer Nislow, *Making the Case for a Higher Standard*, 6 *COURTS TODAY* 38-40 (June/July 2008) (see discussion of the future of forensic digital evidence to detect minerals in soils, to distinguish striations in bullets/shell casings or impressions of tool marks, and in different chemical compositions in gasoline).

These inherently complicated cases create a need for new technological tools so that lawyers may present complex evidence to jurors in a comprehensible manner. Digital displays not only allow lawyers to tell a story in a more concise, coherent, and sequential way, but create a case theme from which all jurors, regardless of their prior knowledge and experience, can start on common ground. Digital picturing tools also can be used to teach a jury to consider an alternative plausible story (e.g., in a slip-and-fall<sup>3</sup> or arson case<sup>4</sup>) or to see the same scenario from a different vantage point (e.g., a police car chase scenario<sup>5</sup>). Digital visual displays are therefore becoming not only more common in court, but also more varied.

Aside from digital imaging now being both economical and of higher quality with respect to graphics and images, digital evidence has become more prevalent in courts for a variety of reasons, including: (1) the increased use of complex scientific expert testimony that requires translation into visual form to aid jurors' comprehension; (2) the possibility any expert's testimony may depend in part on pictures, graphics, or models the expert has created in the course of coming to an opinion, for which the pictures may now themselves be substantive visual evidence; (3) the increasing recognition that jurors are active rather than passive information processors<sup>6</sup> who can benefit from combined visual and verbal teaching;<sup>7</sup> (4) the ubiquity of digital image-making and image-processing tools such as digital photographs, digital video cameras, computer animations, and software such as Adobe Photoshop making much more visual evidence available; and (5) the various multimedia trial presentation software such as PowerPoint (by Microsoft), Trial Director (by InData

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3. Veronica Blas Dahir, *The Effect of Presentation Mode and Argument Quality on Memory, Comprehension, and Decision-Making: Implications for Computer Display Usage and Evidence Strength in the Courtroom* (2005) (Ph.D. dissertation, University of Nevada, Reno, United States—Nevada, Dissertations & Theses @ University of Nevada Reno, Publication No. AAT 3210075), retrieved March 2, 2011.

4. *State v. Bontatibus*, CR8-121874 (Super. Ct., New Haven County, CT, 2006); see also NEAL R. FEIGENSON & CHRISTINA SPIESEL, *LAW ON DISPLAY: THE DIGITAL TRANSFORMATION OF LEGAL PERSUASION AND JUDGMENT* 69 (2009).

5. *State v. Murtha*, CR03-0568598T (Conn. Super. Ct., JD Hartford, 2006); FEIGENSON & SPIESEL, *supra* note 4, at 92; *Scott v. Harris*, 550 U.S. 372, 127 S. Ct. 1769 (2007).

6. B. Michael Dann, "Learning Lessons" and "Speaking Rights": *Creating Educated and Democratic Juries*, 68 IND. L.J. 1229–79 (1993); Nancy S. Marder, *Juries and Technology: Equipping Jurors for the Twenty-First Century*, 66 BROOK. L. REV. 1257, 1262 (Summer 2001). Professor Marder agrees with Judge Dann's proposal to move from a more passive to a more active juror role by teaching jurors; she argues that "technological tools will enable jurors to become more active participants in the trial process and will strengthen the jury at a time when the jury is under attack for its inability to handle the complexities of modern-day cases."

7. Allan Paivio, *Dual Coding Theory: Retrospect and Current Status*, 45 CAN. J. PSYCHOL. 255–87 (1991).

Corp.), Sanction (by Verdict Systems, LLC), and others<sup>8</sup> encouraging lawyers to put more of their case into audiovisual form on screens in ways that not only tell their client's story visually, but allow evidence during trial to be accessed instantaneously (i.e., out of linear order if necessary) and more precisely (e.g., a specific video frame or deposition line).

As a consequence, digital displays also have a greater likelihood of drawing objections due to the ease at which they can be: (1) manipulated and altered using photo enhancement software or other novel techniques not used with traditional analog photos; (2) degraded, tampered with, or edited (e.g., as to resolution, sound, or frames in a digital video); and (3) interpreted differently by simply changing data (e.g., viewpoints, angles, or lighting in a computer display).

This chapter focuses on digital visual evidence<sup>9</sup> displayed on courtroom screens, whether that evidence is digital in origin or was converted to digital images via scanning from its analog or physical form, such as photos, videos, computer animations, and multimedia displays. The focus of the chapter is on digital displays used most often in both civil and criminal trials: digital pictures, digital videos, and computer animations and simulations (computer displays). The chapter starts with general admissibility issues with respect to these types of evidence, culminating in Federal Rule of Evidence (FRE) 403.<sup>10</sup> The discussion then moves into generally applicable psychological research that should be considered by judges as well as the trial lawyer or consultant proffering this type of evidence. Next, the chapter focuses on specific social and psychological as well as admissibility issues with respect to specific types of digital evidence, including digital photography and video, computer displays, and trial presentation software used to display multimedia. Finally, the chapter ends with a brief conclusion and discussion about the future of electronic evidence along with a series of checklists that address common concerns, more or less specific to each type of electronic evidence discussed herein.<sup>11</sup>

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8. David G. Ries, *Computer Presentations by Lawyers in the Conference Room, Classroom, and Courts*, 78 PENN. B.A.Q. 56 (Apr. 2007); see *Sanction II*, Verdict Systems, LLC, [www.verdictsystems.com](http://www.verdictsystems.com); *Trial Director*, InData Corp., [www.indatacorp.com](http://www.indatacorp.com); *Trial Pro II*, Idea, Inc., [www.ideaview.com](http://www.ideaview.com); Visionary, Visionary Legal Technologies, [www.freevisionary.com](http://www.freevisionary.com).

9. The terms *digital visual evidence*, *electronic presentation of evidence*, *digital displays*, *computer-generated evidence*, and *electronic evidence* are used interchangeably throughout this chapter.

10. Federal Rules of Evidence (2010).

11. Thus, this chapter will *not* address the admissibility of electronically stored information (ESI) that deals only with written text or the spoken word (rather than graphical images), such as text messages, web pages, instant messaging, or chat rooms, as discussed in Paul W. Grimm et al., *Back to the Future*, Lorraine v. Markel American Insurance Co. and *New Findings on the Admissibility of Electronically Stored Information*, 42 AKRON L. REV. 357 (2009).

## GENERAL ADMISSIBILITY CONCERNS AND ISSUES

Although the admissibility issues regarding digital evidence are constantly evolving, and “new” admissibility issues will continue to be reinvented in the future, digital evidence simultaneously fosters the same objections that have been around since the first use of chalkboards and pictures in court. Courts have always been concerned with whether a photograph was what it purported to be and not doctored in any way (FRE 901<sup>12</sup>—authentication) or whether a photo’s probative nature justified its being shown to the jury despite the possible risks of confusion, misleading nature, or undue prejudice (FRE 403<sup>13</sup>—probative versus prejudicial balancing test). For example, in 1955, long before the idea of a “courtroom of the future” came along, or the establishment in 1993 of the Courtroom 21 Project at William & Mary School of Law,<sup>14</sup> *Sheppard*<sup>15</sup> was decided. The *Sheppard* court addressed the idea that blown-up pictures of the victim’s wounds, which were projected onto a six-by-six foot screen, were not unfairly prejudicial (FRE 403<sup>16</sup>) to the defense. These admissibility issues in *Sheppard* still exist today, some fifty-five years later, and they have been further complicated with the invention of digital<sup>17</sup> photography, videos, and computer displays, as well as the increasing use of trial presentation software. The main difference seems to be that when electronics are used to present the evidence, even more objections can arise, going beyond the evidence to the use of the technology itself.<sup>18</sup>

The use of digital pictures and trial presentation software makes it is not only much easier to show pictures to the jury in any way imaginable, but also to manipulate images, fostering more objections with respect to completeness and unfairness. Digital displays make it much simpler to change color, shape,

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12. *Id.*; FRE 901.

13. *Supra* note 10.

14. Courtroom 21 at the William & Mary School of Law, established in August 1993, is now named the Center for Legal and Court Technology; see [www.Legaltechcenter.net](http://www.Legaltechcenter.net) (last visited Aug. 4, 2010).

15. *State v. Sheppard*, 100 Ohio App. 345, 386, 128 N.E.2d 471, 497 (1955).

16. *Supra* note 10; FRE 403.

17. Digital differs from analog in the following way: analog transmissions use electronic signals varying in frequency or amplitude (e.g., television sets, video cameras, video monitors, and most evidence cameras) while digital transmissions use electronic signals with discrete units (ones and zeros) representing both positive and nonpositive (e.g., computers, DVD players, CD players, digital cameras, and computer monitors). See DEANNE C. SIEMER ET AL., *EFFECTIVE USE OF COURTROOM TECHNOLOGY: A LAWYER’S GUIDE TO PRETRIAL AND TRIAL* (2002); see also FEIGENSON & SPIESEL, *supra* note 4, at 109 for a lengthier discussion of digital versus analog.

18. *State v. Swinton*, 847 A.2d 921 (Conn. 2004).

sound, light, size, and shadows as well as delete entire frames from video sequences. Digital photos can be more easily enlarged, enhanced, and cropped, and digital videos and animations can be shown from varying vantage points or with various sound clips. Unfortunately, it is also easier to make a picture grainier or more blurry, or a video clip less visible (see *People v. Dunlop*)<sup>19</sup> to reduce the quality or to obscure relevant details. Additionally, the juxtaposition and mobilization of evidence, as well as various picture, word, and sound combinations and multimedia abilities, can be done with much greater ease with trial presentation software.

This section will discuss the law as it is developing for current technologies as well as the challenges these technologies pose for the application of evidentiary rules and practices. All types of electronic evidence generally follow the same admissibility guidelines as traditional evidence,<sup>20</sup> regardless of any attempt to create an operational definition of a specific type (such as computer-generated evidence (CGE)), or suggestions by scholars that there need to be more specific guidelines for all types of CGE besides the Federal Rules of Evidence.<sup>21</sup>

## Demonstrative Evidence

Before a discussion of general admissibility concerns, it is necessary to distinguish between terms. For example, the definition of demonstrative evidence has become imprecise over the years,<sup>22</sup> despite the attempt by many legal scholars to distinguish between purely demonstrative evidence used merely to *illustrate* a witness's testimony and *substantive* evidence offered for its "truth." Essentially, demonstrative evidence is evidence that illustrates, supports, or

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19. See the civil case *Dunlop v. City of New York*, 2006 WL 2853972 (S.D. N.Y. Oct. 4, 2006) for a description of the earlier criminal case and the video that was altered by police. See also the discussion of *People v. Dunlop* in FEIGENSON & SPIESEL, *supra* note 4, at 49–61 for a more detailed description of the video's contents.

20. See Federal Rules of Evidence (2010).

21. Zachariah B. Parry, *Digital Manipulation and Photographic Evidence: Defrauding the Courts One Thousand Words at a Time*, 2009 U. ILL. J.L. TECH. & POL'Y 175 (Spring 2009); 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. 161–301 (Winter 2000); Catherine Guthrie & Brittan Mitchell, *The Swinton Six: The Impact of State v. Swinton on the Authentication of Digital Images*, 36 STETSON L. REV. 661 (2007).

22. See discussion of "illustrative aid" and "evidentiary exhibit" in DEANNE C. SIEMER ET AL., EFFECTIVE USE OF COURTROOM TECHNOLOGY: A LAWYER'S GUIDE TO PRETRIAL AND TRIAL, at 142–45 (2002); see also Jennifer L. Mnookin, *The Image of Truth: Photographic Evidence and the Power of Analogy*, 10 YALE J.L. & HUMAN. 1–74 (Winter 1998) for a discussion of how the confusion over the definition of "demonstrative evidence" originated.

enhances the testimony of a witness (usually an expert) and that can be entered into trial either as substantive evidence or for illustrative purposes only. Perhaps the main difference between an illustrative exhibit and substantive evidence is that an illustrative one tends to be more readily received by the courts because it is seen simply as an instructional vehicle, while substantive evidence because it is received for its truth, must follow the admissibility rules (such as the Federal Rules of Evidence) and goes into the jury room as evidence.<sup>23</sup>

The confusion over the definition of demonstrative evidence has resulted in courts defining this evidence in different ways.<sup>24</sup> The most common definition appears to be that demonstrative evidence merely *demonstrates* or *illustrates* the testimony of a witness; that so long as it is helpful, it is not subject to the same higher standards such as authentication that is required for substantive evidence (such as a gun or bullet in a plastic bag); and that unlike substantive evidence, it does not go into the jury room for consideration as “evidence.” However, some courts at least are considering various computer-generated demonstratives (such as computer animations and simulations) as substantive evidence.<sup>25</sup> Regardless, the judge has the discretion to accept the evidence as either illustrative or substantive, and even some items that are offered for illustrative purposes only may make it into the jury room at the discretion of the court.<sup>26</sup>

## Federal Rules of Evidence

Establishing a foundation to admit demonstrative exhibits as substantive evidence requires adherence to the jurisdiction’s rules, such as the Federal Rules

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23. GREGORY P. JOSEPH, *MODERN VISUAL EVIDENCE* § 8.05[1], 8-26.7 & § 9.02[1] 9-3 (2005).

24. SIEMER ET AL., *supra* note 22, at 142–44. See *State v. Swinton*, 847 A.2d 921 (Conn. 2004); see also Lisa Podolski & Neal R. Feigenson, *Digitally Processed Images in Connecticut Courts after Swinton*, 25 CONN. TRIAL LAWYERS ASSO. FORUM (Winter 2007); see Galves, *supra* note 21.

25. *State v. Swinton*, 847 A.2d 921 (Conn. 2004). The *Swinton* court also reserved judgment on the distinction between a computer animation and simulation as being either illustrative or substantive; however, the main difference is that an illustrative exhibit tends to be more readily received by the courts because it is seen simply as an instructional vehicle, while substantive evidence (because it is received for its “truth”) must meet the admissibility standards under the Federal Rules of Evidence. This difference is an important one because the characterization of the evidence as either substantive or illustrative is essential for determining what admissibility standards apply, and with respect to computer animations versus simulations, this distinction is especially important; see Grimm et al., *supra* note 11, for a discussion of its significance. See also JOSEPH, *supra* note 23, § 7.05[1], 7-56; see also Galves, *supra* note 21.

26. JOSEPH, *supra* note 23, § 9.02[1] 9-3; see also Galves, *supra* note 21, at n.137, citing the Advisory Committee notes to FRE 611(a) and the committee’s discussion surrounding the admission of demonstrative evidence and judicial discretion.

of Evidence or state equivalent. The electronic evidence proffered must be (1) relevant under FREs 401 and 402; (2) not subject to hearsay objections under FRE 801; (3) authentic under FRE 901; and (4) probative and not unfairly prejudicial under FRE 403. Other FREs can, and usually do apply, such as FREs 702, 703, and 611.<sup>27</sup> Therefore, all electronic evidence follows the same admissibility standards as nonelectronic evidence, with FREs 702, 901, and 403 relied on most often due to the nature of such evidence. This chapter will focus on the most generally important of these rules with respect to electronic evidence (such as expert opinion, authentication, and the probative versus prejudicial balancing test) while only touching upon others as they relate to specific evidence types discussed herein.

### **FRE 702: Expert Testimony**

The courts saw a turning point in the admissibility of scientific, technical, and other specialized evidence in the 1990s with *Daubert* and its progeny.<sup>28</sup> *Daubert*'s crux was to replace *Frye*'s general acceptance standard while upholding FRE 702, and to provide a guideline for judges as gatekeepers to determine the reliability and relevance of the evidence, a role judges seemed to embrace thereafter.<sup>29</sup> These rules only apply when an electronic presentation is substantive evidence based on an expert's testimony or knowledge, including scientific, technical, or "other specialized knowledge." Therefore, it does not apply to an illustrative aid with respect to what a lay witness says or could have seen (e.g., a day-in-the-life video, a multimedia presentation such as a victim impact video or video profile, or a computer animation offered only to illustrate a lay witness's testimony). Accordingly, if an animation of a slip-and-fall accident is offered to illustrate the plausibility of a plaintiff's testimony regarding how he might have fallen head over heels down the stairs in

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27. See also JOSEPH, *supra* note 23, § 7.01[1], 7-5; see also Galves, *supra* note 21.

28. *Daubert v. Merrell-Dow Pharms., Inc.*, 509 U.S. 579 (1993). The four pronged "test" includes: (1) general acceptance, (2) falsifiability, (3) error rate, and (4) peer review and publication. *Daubert* also gave birth to two other controversial and historical cases that with *Daubert* eventually became known as the "*Daubert* Trilogy": *Gen. Elec. Co. v. Joiner*, 522 U.S. 136 (1997) and *Kumho Tire Co. v. Patrick Carmichael*, 526 U.S. 137 (1999).

29. For example, in a national survey of state trial court judges conducted in 1998, Gatowski et al. found that the vast majority of state trial court judges surveyed just after *Daubert* was decided (and just before the *Kumho* decision was being handed down) believed their role was to serve as an "active gatekeeper" against questionable scientific evidence. Sophia I. Gatowski, Shirley A. Dobbin, James T. Richardson, Gerald P. Ginsburg, Mara L. Merlino, & V. Dahir, *Asking the Gatekeepers: A National Survey of Judges on Judging Expert Evidence in a Post-Daubert World*, 25 LAW & HUMAN BEHAVIOR 433-58 (2001).

a public events center (rather than slipping backwards onto his backside with his feet out in front of him), FRE 702 would not apply. However, if the same animation were proffered to illustrate the *expert witness's* testimony of how the plaintiff could have fallen as depicted in the computer animation, based on the witness's human factors expertise in the area of slip-and-fall accidents versus *trip-and-fall* accidents, FRE 702 might apply.

### **FRE 901: Authentication**<sup>30</sup>

The general requirement for authentication is that the evidence proffered is what its proponent claims it is. Under FRE 901(b), dealing with illustrations, there are ten ways of satisfying the authentication requirement. With respect to electronic presentation of evidence, FRE 901(b)(1) "Testimony of a Witness with Knowledge," FRE 901 (b)(3) "Comparison by Trier or Expert Witness," and FRE 901(b)(9) "Process or System" are often the most applicable. For example, in *Swinton*,<sup>31</sup> a case where digital bite mark evidence was proffered, the Connecticut Supreme Court decided that there should be no distinction between a digital demonstrative aid as being either illustrative or substantive as is often the case with computer animations and simulations, and that the aid should be subject to the same higher threshold standards as substantive evidence. The *Swinton* court states, "We see no harm in applying a single standard, one that is fairly stringent and uses reliability as its touchstone."<sup>32</sup> The *Swinton* court further established that because the digitally enhanced bite mark images using Adobe Photoshop were *not* merely illustrative, but demonstrative (because they were photographs enhanced through a computer), the evidence was therefore substantive and subject to the more stringent authentication rule.<sup>33</sup> Therefore, the court in *Swinton*, relating most closely to FRE 901(b)(9), established a six-part test for determining the authentication of computer-generated evidence, and therefore, its reliability: (1) computer equipment is accepted in the field and in good working order; (2) the operators of the computer equipment are qualified; (3) proper procedures are followed with respect to the data input and output; (4) the software program utilized is reliable; (5) the equipment utilized is properly and correctly programmed; and (6) "the exhibit is properly identified as the output in question."<sup>34</sup>

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30. Federal Rules of Evidence (2010).

31. *State v. Swinton*, 847 A.2d 921 (Conn. 2004).

32. *Id.* at 945.

33. *Id.* See also Podolski & Feigenson, *supra* note 24; see also Guthrie & Mitchell, *supra* note 21.

34. Guthrie & Mitchell at 811–12 (citing CHRISTOPHER MUELLER & LAIRD KIRKPATRICK, EVIDENCE: PRACTICE UNDER THE RULES § 9.16 (2d. ed. 1999)).



Authentication is especially important for surveillance videos or computer simulations and with respect to technical or scientific pictures such as fMRIs (functional Magnetic Resonance Images), where the digital images are automatically taken by the machine itself (aka “silent witness theory”<sup>35</sup>), and there is no witness who can say, “This looks like what I saw.” For example, if a picture of crime scene is introduced into evidence, a witness who took the picture can be cross-examined and asked about the picture, thus laying a foundation for what it purports to show; authentication is therefore not an issue. However, if photos of brain images are taken by an fMRI machine, or videos of a police chase are taken by a video surveillance camera, authentication issues regarding the machines themselves and whether they were in good working order come into play. Other examples of authentication issues with respect to computer animations and simulations include the operation of the equipment, the accuracy of the data entered, and even the motion and sound used in an animation<sup>36</sup> (see further discussion below). Grimm et al.<sup>37</sup> also go into great detail with respect to authentication of various types of electronic evidence including computer animations and simulations.

### **FRE 403: “Unfairness,” Probative versus Prejudicial, Confusion, Misleading, Waste of Time**

FRE 403<sup>38</sup> requires an evaluation of the exhibit’s probative value and its helpfulness in aiding the jury while simultaneously evaluating the possibility of the exhibit misleading, confusing, or *unfairly* persuading the jury. This guideline appears to be straightforward; however, no “operational definition” (to borrow a scientific term) of what is “probative” or “unduly prejudicial” exists for computer-generated evidence such as digital pictures, digital videos, or computer displays. The rule’s vagueness further broadens the authority of the trial judge, which is generally subject to reversal upon appeal only for abuse of discretion. Given that the FRE 403 balancing test is up to the discretion of the trial judge, and little guidance with respect to a uniform definition exists, trial courts often look to other courts’ decision-making processes with respect to those factors that might make digital displays run afoul of FRE 403.

The difficulties in applying FRE 403 to digital displays specifically arise for a number of reasons. First, unless undue prejudice and confusion *substantially*

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35. JOSEPH, *supra* note 23, § 5.02[1], 5-5; 5-7.

36. SIEMER ET AL., *supra* note 22, at 225–27.

37. Grimm et al., *supra* note 11.

38. Federal Rules of Evidence (2010).

outweigh its probative value, evidence is admitted rather than excluded; however, there is no standardized operational definition or guideline for judges to explain what “unduly” prejudicial is, especially with respect to some specific types of digital evidence (e.g., computer animations and simulations, victim impact videos, day-in-the-life videos, etc.). Second, even if such a standard operational definition did exist, specific types of visual digital evidence may have technical nuances that are not applicable or cannot be generalized to other types of digital evidence (e.g., Adobe Photoshop overlays used in digital photography do not apply to computer animations, just as the motion and sound in animations do not apply to digital still photographs). For example, what is “excessive” in a photograph may not be applicable to a videotape or a computer-generated exhibit because a photograph is a different *type* of visual display that differs in technologically distinct ways from videotapes and computer animations, such as its dimensionality. Various angles and vantage points can be displayed in videotapes and computer animations that cannot be displayed with photos per se (at least not in the same way), and the repetitive nature of showing a computer animation from various angles and vantage points may be considered “excessive” or “cumulative;” whereas with photographs, these two terms have entirely different definitions, such as there being too many photographs or the photographs being too visually graphic (e.g., blood or dead bodies). Therefore, an operational definition provided by other court rulings of what might be considered *unduly* prejudicial, misleading or confusing for each specific type of digital evidence is described below. For now, let us turn to the idea of “unduly” prejudicial and what cognitive psychology and social psychology can offer both lawyers and judges in considering FRE 403 issues.

## **COGNITIVE AND SOCIAL PSYCHOLOGICAL JURY ISSUES TO CONSIDER**

Ironically, the use of digital displays has not only multiplied the occasions for them to be helpful in teaching the case to jurors, it also has increased their ability to mislead, confuse, and be unduly prejudicial, making the roles of both the trial lawyer and judge in an adversarial system even more challenging. Jurors are unique in terms of age, knowledge, occupation, experience, information processing, learning styles, and attitudes toward computers and science in general—all which can bias jurors’ framing of (and subsequent processing of) electronically proffered evidence. These individual differences

influence not only the way a case narrative is perceived by jurors, but also their subsequent filtering, monitoring, and decision-making processes as active information processors. All of these issues should be kept in mind when preparing for trial.

Lawyers are not the only ones who will benefit from understanding the broader social and psychological issues that could impact jurors' ways of thinking, and subsequently, their decision making. Judges, as gatekeepers, benefit from discussions surrounding these topics as well, specifically with respect to FRE 403 and admissibility issues regarding the potential prejudicial nature of electronic visual displays. Thus, it is equally important for both lawyers and judges to understand what general cognitive, social, and psychological factors should be considered with respect to the admissibility of various types of digital displays. This section draws insights from both cognitive and social psychology about how active jurors process evidence and hence their responses to digital visual evidence.

## Learning Styles

Many theories of learning style have been posited demonstrating that some people learn a new concept visually, while others do so aurally, tactually, or with more than one sensory modality. For example, Paivio proposed a dual-coding theory of memory and cognition.<sup>39</sup> Studies conducted using this theory reveal that when participants are confronted with an auditory mode, a visual mode, or both, most participants retain more information when presented with information simultaneously in both a visual and auditory format.<sup>40</sup> Other research in the areas of perception, learning, and memory also has shown greater recall and comprehension of the information among participants in dual-mode conditions.<sup>41</sup> When presenting evidence, giving jury instructions, or telling a story, lawyers should keep these various learning styles of jurors in mind in choosing a visual aid (or deciding whether to use one at all).

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39. Paivio, *supra* note 7.

40. *Id.* See also John D. Bransford & Marcia K. Johnson, *Contextual Prerequisites for Understanding: Some Investigations of Comprehension and Recall*, 11 J. VERBAL LEARNING & VERBAL BEHAVIOR 717–26 (1972); David A. Kobus et al., *Effect of Multimodal Stimulus Presentation on Recall*, 78 PERCEPTUAL & MOTOR SKILLS 320–22 (1994); Gwen C. Nugent, *Pictures, Audio, and Print: Symbolic Representation and Effect on Learning*, 30 EDUCATION COMMUN & TECH. J. 163–74 (1982); L.C. Morrell, *The New Courtroom: New Technology: Experimental Research on the Influence of Computer-Animated Display on Jurors*, 28 SW. U.L. REV. 411–15 (1999).

41. Bransford & Johnson, *supra* note 40; Kobus et al., *supra* note 40.

## Narratives and Storytelling

The story model of decision making by Pennington and Hastie<sup>42</sup> suggests that participants take bits of information (whether or not presented in temporal order) and create a story or a narrative of the event as a whole, based on the facts in dispute. The story model further hypothesizes that these narratives created by jurors are centralized on the causal and intentional relationship between events. Pennington and Hastie found that whichever story was easiest to construct (whether guilty or innocent) was not only the side more likely to be voted for, but that the voters were more confident in their decision. The use of a digital display (e.g., a computer animation) in the courtroom is one way to facilitate the plausibility of a story or make that story easier to visualize (see the Dahir dissertation,<sup>43</sup> *Murtha*,<sup>44</sup> and *Bontatibus*,<sup>45</sup> discussed further below).

## Heuristics

One key to understanding the persuasive impact of all types of computer-generated evidence is to examine how the decision-making process of people may determine whether a particular piece of information will be beneficial or prejudicial to their decisions. One way to accomplish this goal is to look at how an “inferential error” might occur in those decision-making processes,<sup>46</sup> when the decision maker must sort through all the information available in the situated context<sup>47</sup> as well as in memory. To help simplify this process, individuals use heuristics, or “rules of thumb.” Examining the role of heuristics or “rules of thumb” in decision making also may be helpful in informing judges’ decisions regarding the admissibility of computer simulations, animations, or other digital media.

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42. Nancy Pennington & Reid Hastie, *Explaining the Evidence: Tests of the Story Model for Jury Decision Making*, 62 J. PERSONALITY & SOC. PSYCHOL. 189–206 (1992).

43. Dahir, *supra* note 3.

44. *State v. Murtha*, CR03-0568598T (Conn. Super. Ct., JD Hartford, 2006).

45. *State v. Bontatibus*, CR8-121874 (Super. Ct., New Haven County, CT, 2006).

46. RICHARD E. NISBETT & LEE ROSS, *HUMAN INFERENCE: STRATEGIES AND SHORTCOMINGS OF SOCIAL JUDGMENT* (1980); VICTOR J. GOLD, *Federal Rule of Evidence 403: Observations on the Nature of Unfairly Prejudicial Evidence*, 58 WASH. L. REV. 497–533 (1993); SUSAN FISKE & SHELLEY E. TAYLOR, *SOCIAL COGNITION* (1990).

47. G.P. Ginsburg, *The Analysis of Human Action: Current Status and Future Potential, in Discovery Strategies in the Psychology of Action* 255–279 (G.P. Ginsburg et al. eds., 1985).

People use a number of biased cognitive strategies or “heuristics” to make judgments about *uncertain* events.<sup>48</sup> The two most common types of heuristics used by humans in all areas of decision making are the “availability heuristic” and the “representativeness heuristic.”<sup>49</sup>

For example, the “availability heuristic” is influenced by vivid information<sup>50</sup> and is “most available to the decision-maker’s perceptions, memory, and imagination.”<sup>51</sup> Tversky and Kahneman discuss the availability heuristic this way: “A person is said to employ the availability heuristic whenever he estimates frequency or probability by the ease with which instances or associations come to mind.”<sup>52</sup> Thus, the easier the information is to recall from memory, such as the vividness of the images used as evidence, the more likely the availability heuristic is used in decision making. Vivid information, which could be a heuristic cue itself, is more sensory stimulating, dynamic, and memorable and has been postulated to affect ease of recall.

For example, Nisbett and Ross<sup>53</sup> state that the more vivid the information, the more likely it will be remembered, and the more likely it will affect later judgments. They define *vividness* as “likely to attract and hold our attention and to excite the imagination to the extent that it is a) emotionally interesting, b) concrete and imagery provoking, and c) proximate in a sensory, temporal, or spatial way.” Vividness might play a particularly important role for jurors’ decision making as they retire to deliberate in a case where a computer display has been proffered. That is, if jurors have trouble remembering the relevant evidence presented, they may have readily available in their memories the vividness of the computer display, which may prime their memories of key evidence. Thus, although vividness may serve as a superficial cue in itself, it also may serve as a memory facilitator or comprehension enhancer of more important relevant evidence. It must be noted, however, that although some researchers have found evidence for the vividness effect,<sup>54</sup> others have found such an effect only under conditions of distraction (for a review of this

48. Nisbett & Ross, *supra* note 46.

49. *Id.*

50. *Id.*

51. Gold, *supra* note 46, at 516.

52. Nisbett & Ross, *supra* note 46, citing the work of Amos Tversky & Daniel Kahneman, *Availability: A Heuristic for Judging Frequency and Probability*, 5 *COGNITIVE PSYCHOL.* 208 (1973).

53. Nisbett & Ross, *supra* note 46, at 45.

54. Robert M. Reyes et al., *Judgmental Biases Resulting from Differing Availabilities of Arguments*, 39 *J. PERSONALITY & SOC. PSYCHOL.* 2–12 (1980); Jonathan Shedler & Melvin Manis, *Can the Availability Heuristic Explain Vividness Effects?* 51 *J. PERSONALITY & SOC. PSYCHOL.* 26–36 (1986); Brad E. Bell & Elizabeth F. Loftus, *Trivial Persuasion in the Courtroom: The Power of (a Few) Minor Details*, 56 *J. PERSONALITY & SOC. PSYCHOL.* 669–79 (1989).

effect, see Taylor and Thompson's 1982 study<sup>55</sup>). For example, research on mock juries regarding pallid versus vivid information reveals that although pallid information often may be more probative, when they were distracted by a task, people were persuaded by the more vivid information, regardless of its probative value.<sup>56</sup> This is a perfect example of how the vividness of digital evidence could potentially bias jurors, who may be persuaded not via logic, but in some sensory, image-provoking, or emotional way, leading them to an inferential error as they disregard the probative value of other (more pallid) evidence. These mixed results call for more research to study the impact of vivid digital evidence on juror judgments.

The representativeness heuristic is also used in decision making by comparing "the likelihood of some state of affairs given knowledge of some other state of affairs, for example, the likelihood that an object is a member of some category because it has certain characteristics. Such judgments are based on the perceived similarity of the known characteristic of the object to the presumed essential characteristic of the category."<sup>57</sup> Unfortunately, the persuasive effects of an electronic presentation such as a computer animation could lead to a juror's use of a heuristic rather than logical reasoning based on the evidence presented, and it is up to the discretion of the trial judge to control the potential misleading nature of the evidence. The heuristic may bias or mislead the juror in a way that leads to an "incorrect" decision. Kassin and Dunn present an excellent example of how the representative heuristic (with respect to the participants' understanding or non-understanding of physics) was used by jurors to either facilitate or impair their judgment in a slip-and-fall accident scenario where a computer animation was utilized to show the plaintiff either jumping or falling off a roof.<sup>58</sup>

Other heuristics that could influence jurors are the motion or sound in a computer animation. Other examples with respect to a heuristic cue in an animation might be the sound of glass breaking, a person screaming when falling out of a window, screeching tires, or the quality of the graphics in the computer animation itself, as opposed to the accuracy of the data or events depicted in the animation. These examples of heuristic cues may be whatever is the most vivid in the presentation, and therefore readily available (e.g.,

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55. Shelley E. Taylor & Suzanne C. Thompson, *Stalking the Elusive "Vividness" Effect*, 89 *PSYCHOL. REV.* 155–81 (1982).

56. Brad E. Bell & Elizabeth F. Loftus, *Vivid Persuasion in the Courtroom*, 49 *J. PERSONALITY ASSESSMENT* 659–64 (1985).

57. Nisbett & Ross, *supra* note 46, at 42.

58. Saul M. Kassin & Meghan A. Dunn, *Computer-Animated Displays and the Jury: Facilitative and Prejudicial Effects*, 21 *LAW & HUMAN BEHAVIOR* 269–81 (1997).

availability heuristic) in jurors' memories that may cause jurors to give undue weight to these particular components of an animation. Each of these examples must be considered with respect to FRE 403 and in weighing the exhibit's probative versus its potential to be *unduly* prejudicial value or potential to mislead the jury. Galves sets forth a more detailed discussion regarding what constitutes an inadmissible computer-generated exhibit based on its unduly prejudicial nature, arguing that FRE 403 favors *admissibility* rather than exclusion, and also analyzing the use of voice-overs and sound effects in computer displays.<sup>59</sup>

## Motion

A number of studies on the effect of motion and learning in the educational literature have found that motion picture presentations *can* be superior to still picture presentations when it comes to knowledge of and performance on *specific* tasks and learning concepts.<sup>60</sup> Although many of these studies are extremely out-of-date and from a different discipline, they can be applied to courtroom technology, which often involves a computer animation (the movement of still slides in a cartoon-like fashion) or other presentation software (e.g., PowerPoint from Microsoft)<sup>61</sup> utilizing transitions or animation (e.g., Wipe, Fade, or Fly-In<sup>62</sup>).

Thus, important questions to consider when proffering evidence (or when opposing counsel is proffering such evidence) is whether any movement is relevant, confusing, or misleading. In short, will the motion help (i.e., provide key relevant evidence that will enhance the testimony) or distract from the point being made with the visual display (see the checklists below)? However, at best these are really just educated guesses, as empirical research regarding the impact of motion in a computer display on decision making is definitely needed. It seems appropriate to posit that motion in a computer display may have no effect at all, or it may either distract from the relevant issues in the message or enhance processing of the relevant information. In fact, Dahir<sup>63</sup> found no support for Petty and Cacioppo's 1986<sup>64</sup> distraction hypothesis with respect to the use of a computer animation. However, the

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59. Galves, *supra* note 21.

60. For a review of some of these studies, see C. DOUGLAS WETZEL ET AL., *INSTRUCTIONAL EFFECTIVENESS OF VIDEO MEDIA* (1994).

61. CLIFF ATKINSON, *BEYOND BULLET POINTS: USING MICROSOFT® OFFICE POWERPOINT® 2007 TO CREATE PRESENTATIONS THAT INFORM, MOTIVATE, AND INSPIRE* (2008).

62. *Id.*

63. Dahir, *supra* note 3.

64. RICHARD E. PETTY & JOHN T. CACIOPPO, J.T., *COMMUNICATION AND PERSUASION: CENTRAL AND PERIPHERAL ROUTES TO ATTITUDE CHANGE* (1986).

motion in the animation was the key variable that significantly impacted participants' belief about the plausibility of the plaintiff's side of the story (compared to the still slide condition and no visual aid condition) because they were better able to visualize how the plaintiff could have pitched forward on the stairs rather than falling on his backside.

## Information Processing

Another area of social psychological research that impacts jury decision making is information processing theory. One well-tested information processing model, the Elaboration Likelihood Model (ELM), is a dual-process model of persuasion proposed by Petty and Cacioppo.<sup>65</sup> This theoretical model of persuasion posits that if one is highly motivated and has the ability to process the information (presumably a juror), one is likely to elaborate and scrutinize the message content (e.g., the relevant semantics of the message), thereby taking an effortful *central route* to persuasion. Central route persuasion results in greater persuasion and relatively stable behavior. In contrast, if one's motivation and ability to process a persuasive message are low, one is more likely to look at peripheral (usually non-semantic, sometimes nonverbal, and usually less relevant or irrelevant) cues. In a *peripheral route* to processing information, for example, one may be influenced not by the soundness of a message's argument, but by heuristics, attributions, or punishing or reinforcing mechanisms. In short, any mechanism that causes persuasion in the absence of argument scrutiny may be called a peripheral cue, and it results in misdirected or biased persuasion and temporary behavior change. For example, with respect to visual displays, peripheral cues could be the nonverbal behavior of a witness in a videotaped deposition<sup>66</sup> as well as the color, vividness of the graphics, sound effects, motion, or even the type of display used (e.g., PowerPoint versus a flip chart). The use of visual displays could either enhance the central merits of an argument (thereby furthering central processing), or distract from the central merits of an argument (thereby furthering peripheral processing).

As noted in various places above, a digital visual display such as a computer animation may serve as a peripheral cue to jurors (e.g., sound, color, motion, and other "bells and whistles" of a computer animation), but it also could serve to point out the central merits of an argument and make it seem more

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65. *Id.*

66. JOSEPH, *supra* note 23 (cautioning specifically about cues with respect to videotaped deposition testimony; see "Cue Consciousness" § 2.06[5]) at 2-53).



plausible (e.g., the *Murtha* and *Bontatibus* case examples and Dahir dissertation discussed below). Research in this area has relied on relatively few studies, and more research on ways such digital displays can enhance or distract jurors' decision making is necessary.

## TECHNOLOGY TYPES

All of these evidentiary and psychological considerations should be kept in mind when looking at the proffer of specific types of electronic evidence, such as digital photography, digital videos, and computer displays. When dealing with specific digital technology (as outlined below), it is important to think not only about the evidentiary and social psychological issues discussed generally above, but the specific nuances of each technology type.

### Digital Photography

Digital photography has been admissible in court since the 1990s. Although the mere use of digital photography over film (analog) photography was once an issue, it has become more commonly accepted. Objections to the use of digital photography have been with respect to the more ubiquitous use of image-altering and enhancement software rather than of digital photography generally. Although it has always been possible to alter film-based photos via cropping, retouching of negatives, or changing of positives (e.g., techniques such as burning or dodging<sup>67</sup>), the ease with which digital photos can now be manipulated through commercially available packages such as Adobe Photoshop and others makes digital photos subject to greater scrutiny.

Two widely used objections with respect to digital photos generally are the completeness objection and the unfairness objection<sup>68</sup> (see checklists below). In essence, digital photography is subject to the same objections as analog photography, with federal courts following the Federal Rules of Evidence (or state equivalent) with respect to authentication under FRE 901 and unfairness under FRE 403. The original documents rules (FRE 1001 through FRE 1008) essentially no longer apply to digital photos as they did to analog

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67. "Dodging" means to lighten, and "burning" means to darken (CHRIS WESTON, *PHOTOSHOP PRO PHOTOGRAPHY HANDBOOK: ADVANCED POST-PRODUCTION TECHNIQUES* (2007)); see also Parry, *supra* note 21, citing Kodak.com.

68. FEDERAL JUDICIAL CENTER/NATIONAL INSTITUTE FOR TRIAL ADVOCACY (hereinafter FJC/NITA), *EFFECTIVE USE OF COURTROOM TECHNOLOGY: A JUDGE'S GUIDE TO TRIAL AND PRETRIAL* (2001).

photos, as each digitally copied image is as good as its “original.” Additionally, digitally enhanced photographic images are demonstrative evidence of a scientific process.<sup>69</sup> Therefore, computer-enhanced photographs are essentially governed by the same admissibility issues that govern any computerized process (i.e., testimony regarding authentication of the scientific theories embodied in the scientific program, as well as the trustworthiness and reliability of both the computer program and its operator is required).<sup>70</sup> Lawyers contemplating offering digitally enhanced images as evidence should keep detailed notes regarding any use of enhancement software. They should then be prepared to present testimony as to the precise nature of the enhancement using such documentation, as well as the original photograph for comparison. As developing technologies other than Photoshop allow more seamless (and therefore less detectable changes), lawyers need to be even more alert to the risks, and judges need to insist on fairly rigorous FRE 901(b)(9) (process type) authentication standards when digitally enhanced photos are offered as substantive evidence in order to deal with any possible manipulation issues.

The seminal case in this area, *State v. Hayden*,<sup>71</sup> was decided in 1998 by the Washington Supreme Court, which in a *Frye* hearing expressly rejected the defendant’s claim that digital photography used to enhance a photo of fingerprint evidence was novel scientific evidence that had not yet been generally accepted in the field. The *Hayden* court accepted the trustworthiness of the enhanced bloody handprints in the digital photos because in this rare case, the pictures were easily comparable to the object (actual bed sheets) from which the handprints were lifted.<sup>72</sup> It was thus easy to tell that the photos had not been tampered with and were therefore authentic.<sup>73</sup>

Following *Hayden* in 2001 was *State v. Hartman*,<sup>74</sup> in which the court affirmed the admissibility of digitally enhanced fingerprint evidence, utilizing Ohio’s Rule of Evidence 702, which draws heavily on *Daubert*. The *Hartman* court’s use of a *Daubert* standard seems somewhat contrary to the *Hayden* court’s claim that digital enhancement was not novel. Similar to *Hayden*, in the 2003 case of *People v. Perez*,<sup>75</sup> the court decided that a photo of shoe prints that was merely enhanced but not otherwise modified using Adobe Photoshop

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69. JOSEPH, *supra* note 23, §§ 8.04 [4], 8-23.

70. *Id.*

71. *State v. Hayden*, 950 P.2d 1024 (Wash. 1998).

72. See JOSEPH, *supra* note 23, Appendix I, at A-60, Figures 6–9 for examples of these digital photos in *State v. Hayden*.

73. Parry, *supra* note 21.

74. *State v. Hartman*, 23 Ohio St. 3d 274, 754 N.E.2d 1150, 1165 (2001).

75. *People v. Perez*, 2003 WL 22683442 (Cal. App. 4 2003).

was not only considered generally acceptable, but also reliable in the scientific community (and therefore not subject to California's *Kelly-Frye* test<sup>76</sup>).

In *State v. Swinton*<sup>77</sup> the defendant's bite pattern, taken from dental molds of his teeth, were superimposed (using Adobe Photoshop) over digitally enhanced photos of bite marks (using Lucis, an image-enhancing software) on the victim's breast. The trial court admitted both the digitally enhanced photos and the Adobe Photoshop overlays;<sup>78</sup> the Connecticut Supreme Court affirmed the admission of the digitally enhanced photos, but held that the overlays should not have been admitted because they did not meet the six-part authenticity test the court articulated.

*Almond v. State*<sup>79</sup> is another case in which the admissibility of digitally enhanced photographs of a crime scene depiction was upheld. In *Almond*, the appellant, who had been convicted of murder and cocaine possession, had objected to the use of digital photos as evidence. However, the Georgia Supreme Court upheld the lower court's use of the photos and stated that digital photos for purposes of identification should be treated no differently than any other photos. One legal scholar, Parry,<sup>80</sup> argues that *Almond's* standard "is precisely why some sort of standard needs to be adopted for the authentication of digital images: there is no authority on the subject." Legal scholars such as Guthrie and Mitchell<sup>81</sup> agree, stating that the decision in *Almond* by the Georgia Supreme Court was erroneous, and that all courts should follow in *Swinton's* footsteps and show greater scrutiny with respect to the reliability of newer types of computer-generated evidence as newer technologies emerge.<sup>82</sup> Guthrie and Mitchell commented with respect to *Almond*: "This holding set forth the dangerous but common precedent that digital versions of routinely accepted traditional evidence do not require additional scrutiny despite the fact that they are the result of new technological processes."<sup>83</sup> Parry also argues that *Swinton* not only set a new standard for the authentication of digitally created or manipulated evidence, but "could prove very useful as a guide for other courts as they confront the issues

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76. JOSEPH, *supra* note 23, § 8.04 [4] at 8-24 (citing the unpublished version of *People v. Perez*, 2003 Cal. App. LEXIS 10683, at \*10-13 (Cal. App. Nov. 14, 2003)).

77. *State v. Swinton*, 847 A.2d 921 (Conn. 2004).

78. *See also* Guthrie & Mitchell, *supra* note 21, at \*694; *see also* [www.lawondisplay.com](http://www.lawondisplay.com) and FEIGENSON & SPIESEL, *supra* note 4, at 113.

79. *Almond v. State*, 553 S.E.2d 803 (Ga. 2001).

80. Parry, *supra* note 21.

81. Guthrie & Mitchell, *supra* note 21.

82. *Id.*

83. *Id.* at 681.

inherent in the authentication of digitally created evidence, particularly digital images.”<sup>84</sup>

Newer technologies that allow the bringing out of details and the improvement of clarity via enhancement (such as the Lucis-enhanced bite marks in *Swinton*) do seem to raise new FRE 901 issues,<sup>85</sup> such as *Swinton*'s question whether the use of computer-enhancement software such as Adobe Photoshop to create dental overlays was generally accepted as standard practice among odontologists.<sup>86</sup> There are other uses of digital photo processing tools that raise new types of objections related to FRE 403 such as completeness as well as the potential for the exhibit to be unfair or misleading (see checklists below) that must be considered. For example, in the forensic community, the use of digital imaging techniques that do not have a direct counterpart to traditional photo processing techniques include color processing, random noise reduction, pattern noise reduction, nonlinear contrast adjustments, and linear filtering.<sup>87</sup>

## Digital Video

Perhaps the most widely used form of electronic presentation of evidence in the courtroom is videotape. The admissibility standards for digital video are essentially the same as for digital photographs,<sup>88</sup> and videotape generally has been used in the courtroom for the past forty years in both traditional and innovative ways.<sup>89</sup> Standard uses of videotape in trials include depositions for witnesses not present at trial, “day-in-the-life” videos of plaintiff’s injuries and their changed lifestyles, and surveillance tapes of crime scenes. Other regular uses include demonstrations of complex concepts, such as experiments and medical procedures, or explanations of physical or theoretical principles. Also becoming more commonplace in court (but which draw the line between evidence and argument) are victim impact videos and video

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84. Parry, *supra* note 21, at \*195.

85. JOSEPH, *supra* note 23, § 8.04[4], 8-26.2 (and also Appendix P), where Joseph also discusses six critical authentication questions regarding digitally enhanced images posed by Erik C. Berg, including: “Has the original image been altered in any way since it was captured?,” “Who enhanced the image and when?,” and “What was done to enhance the image and is it repeatable?” See also § 8.04[5], 8-26.5 where Joseph discusses how to optimize the admissibility of a digital photograph.

86. *State v. Swinton*, 847 A.2d 921 (Conn. 2004).

87. See Guthrie & Mitchell, *supra* note 21, at n.19, also citing *Nooner v. State*, 907 S.W.2d 677, 686 (Ark. 1995).

88. Galves, *supra* note 21, at n.187–192.

89. Karen Martin Campbell, *Roll Tape—Admissibility of Videotape Evidence in the Courtroom*, 26 U. MEM. L. REV. 1445 (Summer 1996).

profiles. This section focuses on the use of video surveillance tapes and day-in-the-life videos. Due to the ease in which video depositions, victim impact videos, and video profiles can be easily displayed and maneuvered via multimedia presentation software, those will be discussed under the multimedia presentation section below.

### **Surveillance Videos**

Surveillance videos are usually used in robbery and burglary cases to show the crime occurring in real time and at the original crime scene location. However, video surveillance also has been used by insurance companies in personal injury cases to demonstrate the plaintiff's injuries are not as severe as claimed (e.g., *DiMichel v. South Buffalo Railway Co.*<sup>90</sup>), by police officers in a high speed chase (e.g., *Scott v. Harris*<sup>91</sup> and *State v. Murtha*<sup>92</sup>) to show the unfolding events of the chase from the point of view<sup>93</sup> of the police officers in the car, or in videos of arrests made of innocent citizens supposedly demonstrating in a Critical Mass bike ride (e.g., *People v. Dunlop*).<sup>94</sup> One caveat regarding surveillance videos is that sometimes they are purposely made in a way that can give rise to an objection that they are misleading; for example, the vantage point or camera angle may be distorted, time segments may be missing or edited, or segments may be sped up or slowed down (see also the checklists below related to videos). For example, if a house is under surveillance, it is common practice to turn off a camera if no one is entering or exiting, but doing so may give a misleading impression that there are more people entering and exiting the building in a steady stream than there actually are. (However, Joseph suggests that as long as there is an explanation during testimony of the practice of turning the camera on and off, admissibility of the tape should not be a problem.)<sup>95</sup> Issues with respect to the authentication of these videos, such as those outlined by FRE 901 and the *Swinton* court above must be considered not only when proffering such evidence, but before its actual collection, such as time- and date-stamping recordings and obtaining modern digital recording systems for capturing the best quality recordings.

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90. *DiMichel v. S. Buffalo Ry. Co.* 604 N.E.2d (N.Y. 1992).

91. *Scott v. Harris*, 550 U.S. 372, 127 S. Ct. 1769 (2007).

92. *State v. Murtha*, CR03-0568598T (Conn. Super. Ct., JD Hartford, 2006).

93. FEIGENSON & SPIESEL, *supra* note 4.

94. *Dunlop v. City of New York*, 2006 WL 2853972 (S.D. N.Y. Oct. 4, 2006).

95. JOSEPH, *supra* note 23, § 5.04[1], 5-19.

Surveillance videos vary greatly in quality. Some factors to consider include: (1) number of frames per second (which to save space could be fewer than what television and movie audiences are used to seeing); (2) likelihood of poorer resolution (e.g., graininess or blurriness); (3) unusual lenses; and (4) unusual camera angles (including not only the physical placement of the camera but its vantage point). All of these factors can affect the “legibility” of or the visibility of important images in the video, and hence, its evidentiary value. Lawyers should remember that similar to photographs, surveillance videos can be altered, edited, and degraded (e.g., *Dunlop* as discussed above), so for comparison purposes it is crucial to ask for the surveillance data in its original form. As discussed previously, people’s prior knowledge, expectations, and experience frame their perceptions and judgments of what they are not only experiencing at the time of the shooting of the video (e.g., in *Murtha*, Officer’s Murtha’s reasonable belief that he was going to be run over by the suspect in the vehicle), but what they could be interpreting as a juror while viewing the replay of the video.

### ***Day-in-the-Life Videos***

“Day-in-the-life” videos are typically used in medical malpractice practice and product liability cases by plaintiffs and in insurance fraud claim cases by the defense. These videos follow a claim victim throughout a typical day to show that he/she either is (plaintiff’s argument) or is not (defense’s argument) suffering from the ailments or injuries for which the plaintiff is claiming relief.

Day-in-the-life videos that have been proffered are subject to a number of challenges, including that they are cumulative or inflammatory, and that they constitute hearsay or dig into collateral issues. In addition, “day-in-the-life” videos are subject to a number of other objections and admissibility issues that differ from surveillance videos, (but are similar to objections concerning video depositions), such as that the subjects of the video could rehearse or exaggerate their expressions or limitations, the filming may involve many retakes, the sound may be enhanced or edited, or the background could be staged. Therefore, there is a greater potential for day-in-the-life videos to be manipulated.<sup>96</sup>

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96. See Gregory T. Jones, *Lex, Lies, & Videotape*, 18 U. ARK. LITTLE ROCK L.J. 613 (Summer 1996) for a more detailed discussion and case law citations for these specific admissibility issues related to day-in-the life videos.

In *Thomas v. C.G. Tate Construction Co.*, decided in 1979,<sup>97</sup> plaintiff proffered a day-in-the-life video showing one of his twenty-seven-minute physical therapy sessions. The court barred the use of the video, stating that it was unduly prejudicial and inflammatory as it showed the plaintiff in extreme anguish (including grimaces, tears, painful groans, and screams<sup>98</sup>) that would elicit sympathy. The court stated that the plaintiff would have no way to depict with the same impact those periods during his recovery where he was free of pain.

But despite early challenges to day-in-the-life videos as in *Thomas*, courts are generally receptive to them as long as they meet a two-part test:<sup>99</sup> (1) “the film is an accurate portrayal of what it purports to show”<sup>100</sup> and (2) “its probative value is not substantially outweighed by the danger of unfair prejudice.”<sup>101</sup> For example, in *Bannister v. Town of Noble*,<sup>102</sup> the court upheld the admission of the videotape despite acknowledging it was not an accurate depiction of a “typical” day in the plaintiff’s life in that part of the video footage depicted acts that the plaintiff was unlikely to do very often.

## COMPUTER DISPLAYS/ COMPUTER-GENERATED EXHIBITS

Similar to digital video displays are computer animations and simulations, also known as computer displays or computer generated exhibits (CGEs) (see Galves),<sup>103</sup> which for nearly three decades have provided important illustrative evidence in both civil and criminal cases. They have been used in cases involving vehicular<sup>104</sup> and airplane<sup>105</sup> crashes along with others both civil and criminal, such as patent disputes.<sup>106</sup>

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97. *Thomas v. C.G. Tate Constr. Co.*, 465 F. Supp. 566, 571 (D.S.C. 1979). See also *Foster v. Crawford Shipping Co.*, 496 F.2d 788, 791–93 (3d Cir. 1974) (ex parte nature of filming unduly prejudiced defendant).

98. JOSEPH, *supra* note 23, § 4.06 [3], 4-49 (citing in footnote 6 *Thomas v. C.G. Tate Constr. Co.*, Inc. 465 F. Supp. 566, 568 (D.S.C. 1979)).

99. *Id.* (citing in footnote 5.1 *Cisarik v. Palos Cmty. Hosp.*, 144 Ill.2d 339, 579 N.E.2d 873, 874 (1991)).

100. *Id.* n.5.1

101. *Id.*

102. *Bannister v. Town of Noble*, 812 F.2d 1265 (10th Cir. 1987).

103. Galves, *supra* note 21.

104. *State v. Pierce*, No. 92-19316CF10A (Fla. 17th Cir. Ct. 1992).

105. *Datskov v. Teledyne Cont'l Motors*, 826 F. Supp. 677, 685 (W.D. N.Y. 1993).

106. *Honeywell, Inc. v. Minolta Camera Co.*, Civ. No. 87-4847 (D. N.J. 1987).

With respect to computer simulations and animations, judges have used other factors in deciding what is unfairly prejudicial to the jury, some of which are generally the same as those used for other types of evidence. These include emotional sensitivity, graphic vividness, and other elements, such as knowledge structures or schemas. The FRE 403 test does not hint at how the balancing exercise should be conducted, and similar to all other types of digital evidence discussed above, no real guideline is provided as to how the preference for relevant evidence should be fostered. This lack of any guideline may be reflected in decisions made by judges in cases where computer-generated evidence has been proffered. For example, Dahir<sup>107</sup> observed in a case law analysis of the admissibility of computer-generated demonstrative evidence that judges who have admitted this evidence have defined it as “no blood and replicated no sound”<sup>108</sup> or “clinical and emotionless.”<sup>109</sup> Those judges who have excluded this evidence have usually defined it according to legal grounds: “unfairness from surprise and undue delay”<sup>110</sup> and “inability of opposing party to change any of the variables and produce an alternative version of the videotape for the jury to view.”<sup>111</sup>

It appears that animations may have either facilitative or prejudicial effects on legal judgment, but why either sort of effect occurs and the conditions under which either is likelier remain largely unknown. Although academics in the social sciences have attempted to guide the legal arena with respect to the facilitative effects of computer displays, there have been only about ten controlled studies of computer animations in legal contexts<sup>112</sup>—and the results have been varied and mixed. These studies have yielded conflicting

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107. Veronica Blas Dahir, Judicial Discretion to Exclude Computer-Generated Demonstrative Evidence: How Do Judges “Define” Unfair Prejudice? Paper presented at the annual meeting of the Law and Society Association, Aspen, CO (June 1998).

108. *Pierce v. State of Florida*, 671 So. 2d 186 (1997).

109. *People v. Hood*, 53 Cal. App. 4th 965 (1997).

110. *Foat v. Torrington Co.*, 217 Wis. 2d 386 (1998).

111. *Pino v. Gauthier*, 633 So.2d 638 (1993).

112. Dahir, *supra* note 3; Meghan A. Dunn et al., *The Jury Persuaded (and Not): Computer Animation in the Courtroom*, 28 LAW & POLICY, 228–48 (2006); Meghan A. Dunn, The Effects of Computer Animation on Juror Decision Making. Poster presented at the annual meeting of the American Psychological-Law Society Conference (Mar. 2000); John M. Houston et al., *Computer Animation in Mock Juries' Decision Making*, 76 PSYCHOL. REPORTS 987–93 (1995); Kassin & Dunn, *supra* note 58; Morrell, *supra* note 40; Robert Edwin Ray, Computer Animation as Demonstrative Evidence: Does Prior Knowledge Matter? (2001) (Ph.D. dissertation, The University of Nebraska–Lincoln, United States—Nebraska, Dissertations & Theses: Full Text, Publication No. AAT 3034388), retrieved March 2, 2011; Teresa M. Rosado, *Influence of Computer-Generated Simulations on Mock Juror and Jury Decision Making*, COURT CALL (J. AM. SOC'Y TRIAL CONSULTANTS) 1–6 (Summer 1998); Robert B. Bennett et al., *Seeing is Believing: Or is It? An Empirical Study of Computer Simulations as Evidence*, 34 WAKE FOREST L. REV. 257–94 (1999); Vicki L. Fishfader et al., *Evidential and Extralegal*



findings as to whether animations affect ultimate legal judgments of guilt, liability, or damages.

For example, Bennett et al.<sup>113</sup> and Rosado (1998)<sup>114</sup> found that a visual aid did not significantly affect damage awards, verdicts, or percentage of liability assigned. In addition, Binder et al.,<sup>115</sup> Ray (Study 1, car accident; Study 2, oil drilling rig case),<sup>116</sup> and Dunn<sup>117</sup> (Experiment 1, using an animation of a car crash) found the animation had no effect on the verdict. However, Dunn<sup>118</sup> (Experiment 2, airplane crash) found that the computer animation of a plane crash did affect the mock jurors' verdicts, and Kassin and Dunn<sup>119</sup> also found that a slip-and-fall computer animation impacted verdicts. In addition, Houston et al.<sup>120</sup> did find a significant difference between a computer-simulation condition and an oral-only condition on the percentage of responsibility assigned to a flight crew.

While some researchers have found computer animations to increase recall, comprehension, expert witness credibility, and even plausibility, others have not. In a computer simulation study involving a plane crash, Houston et al.<sup>121</sup> found that there was no effect of presentation mode on recall (measured using recognition test scores). However, Binder et al.<sup>122</sup> found significant differences between the visual aid conditions and no visual aid condition on both recall and expert witness credibility in a criminal case involving the eyewitness identification of a robbery suspect. Morrell<sup>123</sup> also found that those participants who viewed a computer animation coupled with expert witness testimony narration (i.e., a voice-over) significantly recalled not only more information, but did so in greater detail than those participants who did not view an animation. Dahir<sup>124</sup> also observed similar findings in pretests of her study in that the expert witness's testimony (which

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*Factors in Juror Decisions: Presentation Mode, Retention, and Level of Emotionality*, 19 LAW & HUMAN BEHAVIOR 565-72 (1996).

113. Bennett, *supra* note 112.

114. Rosado, *supra* note 112.

115. D. M. Binder et al., *Use of Courtroom Technology Affects Some Jurors' Perceptions of Expert Witness Credibility*. Paper presented at the annual meeting of the American-Psychology Law Society Conference. La Jolla, California (Mar. 2005).

116. Ray, *supra* note 112.

117. Dunn, *supra* note 112.

118. *Id.*

119. Kassin & Dunn, *supra* note 58.

120. Houston et al., *supra* note 112.

121. *Id.*

122. Binder et al., *supra* note 115.

123. Morrell, *supra* note 40.

124. Dahir, *supra* note 3.

was presented via videotape and held constant across all six conditions) was deemed more credible when participants also saw a visual aid such as a computer animation or still slides (versus no pictures) of the slip-and-fall accident, regardless of the evidence strength (i.e., strong or weak). Dahir<sup>125</sup> also found when a computer animation is paired with weak, but comprehensible arguments (weak evidence), the arguments appear to be even more comprehensible and plausible (i.e., a computer display enhances comprehension and plausibility).

Although there have been relatively few research studies in the area of computer displays and presentations, those studies that have been done have shed some light (however little) on the cognitive processes by which animations might influence decision makers. But more research is continually needed with respect to the numerous variables that can impact the potential effect of a computer display on juror decision making.

Two real-life examples about how the plausibility of one party's side of the story was buttressed by being illustrated with a computer animation are found in *State v. Murtha*<sup>126</sup> and *State v. Bontatibus*.<sup>127</sup> In *Murtha*, Officer Murtha proffered a computer animation showing his point of view that he reasonably believed the suspect was trying to run him over, despite other points of view being captured on surveillance cameras mounted in two other police cars. Similarly, in *Bontatibus*, the defendant was a store owner accused of committing arson to his store which resulted in the death of a fireman. The defendant showed an animation illustrating the plausibility of his fire safety expert's testimony about how the fire could have started in the roof and then spread throughout the store.

Galves argues that with respect to authentication, computer-generated evidence submitted as demonstrative rather than substantive should be subject only to the "fair and accurate portrayal" test with respect to the testimony.<sup>128</sup> For example, Galves engages in a lengthy discussion of these issues including the use of sound effects such as a "skidding" sound in a computer-generated exhibit and FRE 901.<sup>129</sup> In other words, an expert witness would be

125. *Id.*

126. *State v. Murtha*, CR03-0568598T (Conn. Super. Ct., JD Hartford, 2006).

127. *State v. Bontatibus*, CR8-121874 (Super. Ct., New Haven County, CT, 2006).

128. See Galves, *supra* note 21, n.202-03, 228-30; with respect to FRE 901, he uses the example of a computer being programmed with the precise data (such as speed, weight of the truck and cargo, distance, and type of pavement, etc.) as a situation in which the skidding sound may not be as objectionable.

129. Galves also discusses FRE 403 prejudice issues with respect to skidding sounds in that the sound may either be inaccurate or exaggerated.

expected to testify that the sound in computer-generated exhibit is a fair and accurate portrayal of the original sound a skid would have made in the crash based on scientific calculations of the crash scene (such as speed, temperature, distance, or weight of a vehicle).

## MULTIMEDIA PRESENTATIONS

Multimedia presentational software of demonstrative evidence or for illustrative purposes (PowerPoint, Trial Director, Sanction, Trial Pro, Corel Presentations) are not themselves (demonstrative) evidence, but what is shown using them is subject to the same objections as other types of electronic evidence discussed above. Any combination of text or graphical presentation slides, sound, computer animations, photographs, and video constitute a multimedia presentation. All the rules already discussed above along with other admissibility issues (see objections to multimedia presentations below) must be addressed.

Although there have been studies in the educational setting that have looked at the impact of PowerPoint slides on students' learning,<sup>130</sup> the author is only aware of one study that has specifically looked at a multimedia presentation such as PowerPoint and its impact on decision making in a legal setting. Park and Feigenson found that multimedia presentations can have some effect on defendant responsibility as well as lawyer persuasiveness. Specifically, Park and Feigenson<sup>131</sup> found that participants judged the defendant to be less responsible when the defendant's lawyer used PowerPoint, pointing to the use of PowerPoint by the defendant's lawyer as a peripheral cue for participants viewing that lawyer as being more competent, credible, and prepared.

Aside from the impact multimedia presentations might have on jurors' decision making during the process of a trial, these presentations have also been used in showing video depositions as well as victim impact videos and video profiles in capital sentencing hearings.

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130. For a review of some of these articles, see David G. Levasseur & J. Kanan Sawyer, *Pedagogy Meets PowerPoint: A Research Review of the Effects of Computer-Generated Slides in the Classroom*, 6 REV. COMM'C'N 101-23 (2006).

131. J. Park & Neal R. Feigenson, *Effects of PowerPoint on Mock Juror Decision Making* (2007) (unpublished manuscript) (on file with the author).

## DIGITAL DEPOSITIONS

The most common use of video in court is for videotaped depositions. Analog video depositions have been used for quite some time in court,<sup>132</sup> but digital video depositions are becoming more common. Digital video is either created in its original form from a digital video camera or through a digital conversion process from analog. Digital video has several advantages over analog, including preservation of the original resolution and quality when copied and easier-editing capabilities.<sup>133</sup> The use of digital video depositions allow lawyers to not only edit the video depositions at will based on evidentiary objections, but to organize deposition testimony by topic, locate specific frames of testimony instantaneously,<sup>134</sup> juxtapose a witness's testimony with contrary testimony in text format using trial presentation software,<sup>135</sup> display simultaneously a written transcript of possibly garbled or inaudible audio from the video file,<sup>136</sup> display the testimony of two witnesses simultaneously on a split screen, or add a time stamp to the witness's testimony.<sup>137</sup> Common objections to video depositions are generally the same as digital photographs and include completeness and unfairness. Other objections specific to depositions include staging and production techniques, such as close-ups of anxious hand gestures or facial expressions showing nervousness<sup>138</sup> and other nonverbal cues<sup>139</sup> (see checklists below). In addition, video depositions can be excluded for inaccurate lighting, inappropriate background, poor sound, and failure to maintain the original video footage or to log objections or colloquies.<sup>140</sup>

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132. Michael J. Henke & Craig D. Margolis, *The Taking and Use of Video Depositions: An Update*, 17 REV. LITIG. 1 (Winter 1998) (review of an update to the Federal Rules of Civil Procedure, which before 1970 had included only stenographic deposition, and in 1970 allowed the admission of video recorded depositions in court. FED. R. CIV. P. 30(b)(4) (1970) provided: "The court may upon motion order that the testimony at a deposition be recorded by other than stenographic means, in which event the order shall designate the manner of recording . . . and may include other provisions to assure that the recorded testimony will be accurate and trustworthy.")

133. FJC/NITA, *supra* note 68, at 90.

134. See JOSEPH, *supra* note 23, § 2.05[2] at 2-47 and FJC/NITA, *supra* note 68, at 92.

135. See, e.g., MICHAEL ROGERS, LITIGATION TECHNOLOGY: BECOMING A HIGH-TECH TRIAL LAWYER (2006).

136. *Id.* at 272, regarding where the use of Sanction trial presentation software can be used to play (simultaneously) a digitized deposition that has been synchronized with the trial transcript using the "Clip Creator" function in Sanction.

137. *Id.* at 225.

138. JOSEPH, *supra* note 23, § 2.06[1] at 2-51 and 2-53.

139. *Id.*

140. *Id.* § 3.02[1] at 3-3 regarding pretrial rulings and objectionable matter.

## VICTIM IMPACT VIDEOS

Victim impact videos by the victim's families and friends have become more commonplace in capital sentencing hearings to show the emotional, financial, or social impact the loss of the victim has had and to illustrate his or her uniqueness as an individual.<sup>141</sup> These can be simply video clips—or a combination of various digitized media clips, including photographs, soundtracks, movie clips, and videos of the victim's life, usually in chronological order from birth to just before death. For example, they have been used not only with complete photo montages of the victim's childhood (as well as the victim's children and other loved ones), but have been combined with musical soundtracks and home movie clips.<sup>142</sup>

Applicable law with respect to victim impact videos includes FRE 403 (or state equivalent), *Payne v. Tennessee*,<sup>143</sup> and specialized laws in federal court (e.g., 18 U.S.C. § 3593) or applicable state law. The common goal of all these laws is to adhere to the probative versus prejudicial balancing test set forth in FRE 403 and to be sure the video admitted will not be unfairly prejudicial to the defendant.<sup>144</sup>

The U.S. Supreme Court in *Payne* set forth a lenient (or “fundamental unfairness”) test for victim impact evidence, in which the Court considered such evidence as presumably relevant, probative, and admissible unless it is so “unduly prejudicial that it renders the trial fundamentally unfair”;<sup>145</sup> it went even further to define *undue prejudice* as being “so inflammatory as to risk a verdict impermissibly based on passion, not deliberation.”<sup>146</sup> In her concurring opinion, Justice O'Connor suggested that when considering whether evidence is “too” inflammatory, the court should consider whether the victim impact statement might “inflame [the jury's] passions more than did the facts of the crime.”<sup>147</sup> However, despite Justice O'Connor's and other courts' best efforts, as with any other type of evidence subject to FRE 403, there is no real guidance or definition on what is *too* emotional, “unduly

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141. Christine Kennedy, *Victim Impact Videos: The New-Wave of Evidence in Capital Sentencing Hearings*, 26 QUINNIPIAC L. REV. 1069.

142. *Kelly v. California*, 129 S. Ct. 564 (2008). The full video in *Kelly* is available online at [http://www.supremecourtus.gov/opinions/video/kelly\\_v\\_california.html](http://www.supremecourtus.gov/opinions/video/kelly_v_california.html) and in the Clerk of Court's case file.

143. *Payne v. Tennessee*, 501 U.S. 808 (1991).

144. Kennedy, *supra* note 141.

145. *Payne*, 501 U.S. at 825.

146. *Id.* at 836 (Souter, J., concurring).

147. *Id.* at 832 (O'Connor, S., concurring).

prejudicial,” or “inflammatory.” Additionally, a review of these various impact videos by Kennedy<sup>148</sup> reveals courts have no systematic methods either when applying the various rules or when looking at the content of the videos themselves to help them decide what is “too” prejudicial. Courts may look at length, types of pictures, musical soundtrack, and other factors, but not necessarily all of these or even similar factors.<sup>149</sup>

In the two most recent cases involving victim impact videos, *Kelly v. California* and *Zamudio v. California*,<sup>150</sup> the Supreme Court denied certiorari, thus implicitly upholding the lower court’s ruling on the admissibility of the victim impact videos. In *Kelly*, the life of a nineteen-year-old murder victim was portrayed in a twenty-minute video montage showing her as a child and teenager right up to the time of her death. The exhibit included not only video clips of her (complete with sound), but a voice-over narration by her mother. The video clips ended with a close-up of her tombstone followed by a video clip of men horseback riding along a river bank in Alberta, Canada—which according to her mother depicted “the kind of heaven” where the victim would belong.<sup>151</sup> Nonetheless, the California Supreme Court upheld the admissibility of the video, finding it “expressed no outrage,” and contained “no clarion call for vengeance,” but rather “just implied sadness.”<sup>152</sup>

In *Salazar v. State*<sup>153</sup> the trial court also admitted the video and the intermediate appeals court affirmed. However, the Texas Court of Criminal Appeals stated that the trial court and intermediate appeals court erred and that the video should not have been admitted. The Court of Criminal Appeals applied both *Payne* and FRE 403, and the ultimate admissibility issue relied on the unfairly prejudicial impact of 140 photographs substantially outweighing the video’s probative value.

The psychological impact of these digital multimedia presentations also should be considered, such as the anger and emotions the video might invoke during sentencing, the psychological effects of music, and the presentation of a carefully constructed montage in chronological order conveying a story of

148. Kennedy, *supra* note 141.

149. See Kennedy for a more detailed discussion of these admissibility issues as well as psychological issues to consider with respect to the admissibility of victim impact videos (e.g., anger, emotion, psychological effects of music and montage, etc.).

150. *Zamudio v. California*, 43 Cal.4th 327 (2008), *cert. denied sub nom. Kelly v. California*, 129 S. Ct. 564 (2008).

151. *Id.*; see also *supra* note 142.

152. *Id.*

153. *Salazar v. State*, 90 S.W.3d 330, 333–34 (Tex. Crim. App. 2002).

the victim's life in the best possible light.<sup>154</sup> If tied to schemas (as briefly mentioned above), jurors might take this visual story of the victim's life and assimilate the new information by using their personal filters. People use schemas to help make sense of new information they are given. *Schemas* have been defined in various ways, but a typical definition is "cognitive structures of organized prior knowledge, abstracted from experience with specific instances."<sup>155</sup> For example, jurors may compare and contrast the victim's life with their own lives, filling in any blanks (i.e., where things are not explained by the video) with their own information based on their prior knowledge and life experiences. If the jurors see the victim's childhood or adult life as being similar to their own, this may invoke highly emotional responses. Or, as Kennedy<sup>156</sup> suggests, because a video montage is similar to a motion picture that allows one to feel part of the action (unlike still photos), a video montage allows the jurors to empathize with the victim's happy childhood experiences and feel more sadness over the victim's loss of life. Ultimately, all of these psychological issues along with Justice O'Connor's suggestion offered in *Payne* about "inflaming passion" in the jury should be considered.

## CONCLUSION

In this day and age of Facebook, Twitter, Myspace, and many new ways to both communicate and preserve data electronically, the future of digital evidence in the courtroom will see many more challenges. As has happened with all technology types as they have evolved, these admissibility issues will contain elements of both the old and new. Beyond the media canvassed in this chapter, other evolving areas in the forensic evidence domain are virtual autopsies<sup>157</sup> and using multimedia to understand DNA profiling evidence. Additional innovative uses of video in court include: video conferencing depositions from remote locations, e-courtrooms, new scientific topics with respect to future court proceedings, video holograms, video clips being used as

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154. Kennedy, *supra* note 141.

155. Offered by S.T. Fiske & P.W. Linville, p. 543 (as cited in ALICE E. EAGLY & SHELLEY CHAIKEN, *THE PSYCHOLOGY OF ATTITUDES* 18 (1993).

156. *Id.*

157. Guthrie & Mitchell, *supra* note 21, at n.433 (citing Michael J. Thali et al., *Virtopsy—A New Imaging Horizon in Forensic Pathology: Virtual Autopsy by Postmortem Multislice Computer Tomography (MSCT) and Magnetic Resonance Imaging (MRI)—A Feasibility Study*, 48 J. FORENSIC SCI. 386 (Mar. 2003).

analogies in opening and closing statements<sup>158</sup> or as “instant replays” of what a witness said or did on the stand,<sup>159</sup> creation of a trial record, and presentations of prerecorded trials to jurors (i.e., a video trial). (See Chapter 4, “The Juror and Courtroom of the Future.”)

This chapter did not even address the multitude of current digital technologies Grimm et al.<sup>160</sup> discuss with respect to electronically stored information (ESI), such as e-mails, text messages, Internet websites, and chatrooms. Use of these technologies as evidence in the court will increase as society continues to utilize these technologies to network both socially and in business.

Legal procedures to handle current digital evidence must constantly evolve, and new procedures to handle the most state-of-the-art digital technology must be developed as soon as these technologies hit the market. Given (1) the problematic nature surrounding the definition of “unfair” prejudice; (2) the various nuances of each technology type; (3) the ease in which digital evidence can be manipulated; (4) the challenges regarding chain of custody, authentication, and other admissibility issues; and (5) the general lack of knowledge concerning electronic presentation of evidence, it is equally imperative for social and legal scholars to continue to engage in empirical research with respect to the impact of these digital technologies on juror perceptions, attitudes, and decision making.

## CHECKLISTS

The following section includes a checklist of common objections as well as other general questions and issues for lawyers, trial consultants, expert witnesses, and judges to consider for the main types of digital visual evidence discussed in this chapter. These checklists were adapted and compiled from various legal resources and are not meant to be exhaustive.<sup>161</sup>

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158. See Campbell, *supra* note 89, for a lengthier discussion of these other innovative uses of videotape that have been and will be used.

159. Henke & Margolis, *supra* note 132, at 23: “We should now consider the video trial as the potential wave of the future. Advanced audio-visual capabilities would enable a trial to be entirely pre-recorded and presented to the fact finder at a later date.”

160. Grimm et al., *supra* note 11.

161. See JOSEPH, *supra* note 23. See also DEANNE C. SIEMER ET AL., EFFECTIVE USE OF COURTROOM TECHNOLOGY: A LAWYER’S GUIDE TO PRETRIAL AND TRIAL (2002). See also ANN E. BRENDEN & JOHN D. GOODHUE, PERSUASIVE COMPUTER PRESENTATIONS: THE ESSENTIAL GUIDE FOR LAWYERS (2001).



Two widely used objections with respect to photos and videos are the completeness objection and the unfairness objection.<sup>162</sup>

### Objections to Digital Photography

1. *Completeness*—Completeness of the photo is a common objection with digital photos due to the rampant availability of cropping capabilities.
  - a. Cropping—is the photo unfairly cropped in the context for which it is used?
  - b. Can a small version of the full photo be juxtaposed next to an enlarged cropped portion of the photo?
2. *Unfairness*—Does the use of digital enhancement software raise unfairness concerns because of:
  - a. Resizing
  - b. Reshaping
  - c. Cropping
  - d. Changes to lighting
  - e. Changes to color
  - f. Enlargements (e.g., to a size larger than life)

### Objections to Video

1. *Completeness*—addresses whether the original video footage is intact.
  - a. Has any editing that has been done result in an unfair representation (e.g., of a witness's testimony in a deposition)?
  - b. Has there been any combining of various video footages that might result in an unfair representation?
  - c. If statements are edited (e.g., a deposition statement), will the court allow additional portions to be shown to allow for both proper context and a fair consideration of the statement?
  - d. Are segments of the video shown out of order, such as to keep certain themes together in playback (e.g., common themes)?
  - e. Are there time segments missing (e.g., surveillance videos)? (Remember to ask for original files and time and date stamps.)

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162. JOSEPH, *supra* note 23, § 3.04[1] at 3-27, n.2, citing Ohio R. Civ. P. 40 and Ohio Com. Pl. Superintend. R. 12; FJC/NITA, *supra* note 68 and SIEMER ET AL., *supra* note 17.

## 2. *Unfairness*

- a. Is the motion in the video played at either a faster or slower speed than the original (true) speed of the object during videotaping?
- b. Have any frames been omitted or edited in a way that may distort the motion displayed?
- c. Have any still frames extracted from the videos been enlarged (e.g., for use as a still photo)? If yes, is it unfair to removing this still frame from the context of all other frames in the video?
- d. Have any labels or subtitles been added? (If so, the combination of both editing and labels/subtitles may raise an unfairness objection as well; for example, the combination may unfairly represent deposition testimony—see also objections below to other illustrative aids and multimedia presentations).
- e. Are the time and date stamps original? (If not, always request a copy of all raw (original) footage.)
- f. Has the video been transposed from digital to analog, thus reducing the quality or vice versa? (Request copies in their digital form if available.)
- g. Has the video been transformed from color in its original form to black and white, thus reducing the quality? (See *Dunlop*, described above).

## Objections to Computer Animations/Simulations<sup>163</sup>

The following checklist contains a number of potential objections to computer animations/simulations that fall under the “unfairness” objection.

1. *Viewpoint/Point of View*—Does the viewpoint or field of view mirror the witnesses’ viewpoint and field of view? (It is much easier to show the same scenario from various vantage points or fields of view using a computer animation than a still photo.)
  - a. Has the scene been shown from various angles and points of view leading to possible cumulative-effects or waste-of-time objections?
  - b. Is the field of view from a position where no witness was located or could be located?
  - c. Did the computer use a wider field of view than what human eyes of a witness could see? If so, are these field of view distortions misleading?

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163. *Id.* This section is adapted primarily from SIEMER ET AL., *supra* note 17 and FJC/NITA *supra* note 68.

2. *Speed (Motion)*—Is speed a fair and accurate portrayal?
  - a. Is there a foundation laid with respect to the timing of the speed depicted in the animation?
  - b. Does the speed shown in the animation differ from the speed that happened in real life?
3. *Timing*—Are there any timing errors (which can occur when transposing animation from video to either CD or DVD)?
  - a. If the videotape was copied, did any timing errors result?
  - b. Was the action portrayed speeded up or slowed down?
4. *Frame Flaws*—Are any objects missing or misplaced from one frame to the next when an animation is viewed on a frame-by-frame basis?
5. *Motion Flaws*—Is there inaccuracy of motion because not enough “key frames” (intermediate locations between one location and another) for the animation have been provided or their locations are not accurate?
6. *Terrain Flaws*—Is the terrain shown in the animation different than in real life? (For example, is the terrain in the animation perfectly flat whereas in reality it may have been rocky, hilly, sandy, etc.?)
7. *Sound*—Has a foundation been laid to show that the sound is accurate?

### Objections to Other Illustrative Aids and Multimedia Presentations<sup>164</sup>

Illustrative aids shown electronically are likely to draw somewhat different objections than when the same illustrative aids are shown in paper copy, such as:

1. Unfairness
  - a. *Labels* may contain hearsay;
  - b. *Text “treatments”* such as standard callouts may be considered misleading or confusing;
  - c. *Sounds* manufactured by the software tools themselves rarely contribute to a jury’s understanding and are not considered facts in the case (e.g., glass breaking, gunshot, screeching brakes, whoosh), and may be misleading;
  - d. *Position*—(e.g., flipping an image or rotating it in angles that are not true to real life) may be objectionable because it is considered persuasion on irrelevant grounds rather than the purported goal of helping the jury to understand the witness’s testimony.

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164. *Id.*

- e. *Intervals*—time lines important to case theory may or may not represent the actual time lapsed and may be considered misleading or confusing to the jury.
  - f. *Motion*—in a transition (such as one slide to next), it is usually unhelpful but not unfair; motion in an animation form in an individual slide (e.g., zoom outs, wipes, fly ins) is also usually not objectionable, but could be annoying to the opposing lawyer and possibly to the judge and jury depending on in what way and how often they are used; however, motion in a morph (where one object turns into another object or person) can be considered confusing or overly suggestive.
  - g. *Repetition*—may be considered objectionable due to an unfair impact (e.g., in a series of slides, or if an annotated segment of a portion of a person's testimony is played repeatedly, or there is a repetitious animation in a slide show).
  - h. *Colors*—may be objectionable when background color indicates the subject matter of a slide, or color coding is used to suggest links between objects when there may be no foundation for that link.
2. *Leading*—digital slides may lead witness into reciting testimony.
  3. *Argumentative*—labels on a slide may use adjectives or adverbs that are considered argumentative.
  4. *Lack of Foundation*—expert could have no basis for laying a foundation for direct testimony regarding a theme used in the electronic display.
  5. *Lay Opinion*—objectionable if lay witness uses titles, labels, or other text on the electronic display that do not meet Rule 701 requirements.
  6. *Narrative Testimony*—witness could potentially narrate what is shown in digital display, regardless of admissibility of such evidence (e.g., the slide could contain inadmissible evidence).
  7. *Assuming Facts Not in Evidence*—there is the potential for an electronic illustrative aid to reveal facts not yet ruled admissible.