1-1-2005

Not the Evil TWEN: How Online Course Management Software Supports Non-Linear Learning in Law Schools

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Cite as: 5 J. High Tech. L. 183 (2005)

I. INTRODUCTION

The students entering law school today grew up using computers and are comfortable with technology of all kinds. As Professor William Anderson, then President of CALI,[1] said in 1995, "'There is a generational thing here. Some of these students have been working with computers since kindergarten, and they know how to extract information from these machines.'"[2] The situation has only intensified since Professor Anderson made that statement because the move to Internet-accessible classrooms has accelerated, and most students are computer literate and comfortable with online information.[3] By 1995, the majority of public elementary and

1. CALI, or the Center for Computer-Assisted Legal Instruction, http://www.cali.org, is a consortium of over 180 law schools that develops interactive computer lessons used by law schools, and in general works to support and promote the use of technology at law schools. CALI also holds an annual conference for law school computing.

2. M.A. Stapleton, *Computer-Based Lessons Reshaping Legal Education*, CHI. DAILY L. BULL., May 23, 1995, at 3.

3. *See* James G. Milles, *Out of the Jungle*, AALL SPECTRUM, Feb. 2005, at 10.

secondary schools in the United States had Internet access.[4] By 1998, the majority of instructional rooms (i.e., classrooms and libraries or media centers) were connected to the Internet.[5] According to a study done by the Pew Internet & American Life Project,[6] except for schools in very poor districts, almost every school in the United States today has access to the Internet.[7] Simultaneously, the number of homes with access to the Internet has increased,[8] and the residential use of broadband service is expanding.[9] In addition, "[m]embers of Gen Y (those ages 18-27) are . . . the most likely to have used wireless devices."[10] Because of this national expansion of Internet access, approximately 20% of today's college students began using computers between the ages of five and

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Professor Milles states that "the current generation has an intimate familiarity with digital information of which older generations are not readily capable." *Id.* at 11. Furthermore, a recent study found that "[y]ounger users are more likely to search than older users, and to do it more often." DEBORAH FALLOWS, SEARCH ENGINE USERS 23 (Jan.2005) *at* http://www.pewinternet.org/pdfs/PIP_Searchengine_users.pdf.

4. DOUGLAS LEVIN & SOUSAN ARAFEH, THE DIGITAL DISCONNECT: THE WIDENING GAP BETWEEN INTERNET-SAVVY STUDENTS AND THEIR SCHOOLS 1 (August 2002) *at* http://www.pewinternet.org/report_display.asp?r=67.

5. *Id.*

6. The Pew Internet & American Life Project is a "non-profit research center studying the social effects of the Internet on Americans." http://www.pewinternet.org/index.asp. It is funded by the Pew Charitable Trusts.

7. *Id.* Unfortunately, not every teacher, even at the college level, is making good use of the technology available in today's wired classrooms. Students are aware that some of their professors are not skilled in the use of technology in education, and feel that "technology actually makes some of their professors less effective." Jeffrey R. Young, *When Good Technology Means Bad Teaching*, NAT'L L.J., Nov. 12, 2004, at A31. This situation results when colleges spend more money on installing technology in their classrooms than on training professors to use it effectively and creatively. The failure to invest in training faculty results in these widespread problems cited by students: "PowerPoint abuse," which occurs when professors convert their lectures into PowerPoint slides and then read them to students during class; class time spent trying to make projectors or software work; unmoderated discussion groups that seemed to be more afterthoughts than a well-planned part of the curriculum; class time wasted on teaching students a "quirky Web tool at the expense of delivering course material." *Id.* Students would like their professors to "make use of interactive features in course-management systems and work harder to integrate them into courses." *Id.* at A32. Most commentators agree that incentives should be offered to faculty in order to encourage them to incorporate technology into their teaching; typical incentives include additional compensation and offering faculty new office computers if they attend summer technology workshops. *Id.*

8. A NATION ONLINE: HOW AMERICANS ARE EXPANDING THEIR USE OF THE INTERNET 3 (Feb. 2002) *at* http://www.ntia.doc.gov/ntiahome/dn/anationonline2.pdf.

9. *Id.* at 2.

10. LEE RAINIE, PEW INTERNET PROJECT DATA MEMO 1 (Apr. 2004) at http://www.pewinternet.org/PPF/r/123/report_display.asp.

eight, and by the time they got to college, 86% of them had "gone online."[11]

Due to their early introduction to the computer, today's students may learn most effectively when they receive information through an electronic medium, assuming it is done well, because that format actively engages them.[12] For this reason, "it would behoove law schools to integrate . . . technology . . . in a pedagogically sound way."[13] Most experts on legal education[14] do not propose that electronic technology be substituted for the law school classroom experience,[15] but rather that it be used to enhance and extend it. In fact, the "affordability and ubiquitous nature of computers, coupled with the growth of the Internet, has encouraged many law faculty to use technology in teaching their traditional physical classes, or to supplement those classes with a virtual, or online, component."[16]

Some law professors even consider it their professional responsibility to help students "make the transition into today's professional world, which already depends on tomorrow's technology."[17] One professor feels that "demonstrating the capabilities of various media can help prepare students for the

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11. STEVE JONES, THE INTERNET GOES TO COLLEGE: HOW STUDENTS ARE LIVING IN THE FUTURE WITH TODAY'S TECHNOLOGY 2 (Sept. 2002) *at* http://www.pewinternet.org/reports/toc.asp?Report=71.

12. Rogelio Lasso, *From the Paper Chase to the Digital Chase: Technology and the Challenge of Teaching 21ˢᵗ Century Law Students*, 43 SANTA CLARA L. REV. 1, 23 (2002).

13. *Id.*

14. *See, e.g.,* Stephen M. Johnson, *Legal Education in the Digital Age*, 2000 WIS. L. REV. 85, 92.

15. Serious concerns have been raised about the so-called "online law schools," such as Concord Law School, most notably by Supreme Court Justice Ruth Bader Ginsburg in a speech she gave in 1999. Justice Ginsburg said that she was "uneasy about classes in which students learn entirely from home, in front of a computer screen, with no face-to-face interaction with other students and instructors." Katherine S. Mangan, *Justice Ginsburg Raises Questions About Internet-Only Law School*, CHRON. HIGHER EDUC., Sept. 24, 1999, at A36. It is interesting to note that Concord now has approximately 1,700 students and more than seventy faculty members. Tony Mauro, *Thanks, Cyber-Professor Scalia*, LEGAL TIMES, Sept. 6, 2004, at 31.

16. Johnson, *supra* note 14, at 92-93.

17. William R. Slomanson, *Electronic Lawyering and the Academy*, 48 J. LEGAL EDUC. 216, 216 (1998). Slomanson points out that his students "were about to enter a world of client email, law firm websites, and electronic filings." *Id. See also* Kenneth J. Hirsh & Wayne Miller, *Law School Education in the 21ˢᵗ Century: Adding Information Technology Instruction to the Curriculum*, 12 WM. & MARY BILL RTS. J. 873, 874 (2004), and Debra Moss Curtis, *Bringing the Internet to the Classroom: Some Beginner Steps*, (Apr. 2002) *at* http://jurist.law.pitt.edu/lessons/lesapr02.php.

practice of law."[18]   This professor points to the common use of "visual images to explain facts to judges and juries,"[19] including diagrams in automobile accident cases and anatomical illustrations in medical malpractice cases.[20] As high technology makes its way to court rooms, attorneys will need to know how to make the best use of it; an "advantage of utilizing computer technology is that it promotes students' familiarity with resources that inevitably will be integral to their practice."[21]   Furthermore, some corporations now insist on paperless work environments and rely increasingly on technology for both internal and external communications; they expect the attorneys with whom they interact to be digitally literate.   A relatively easy way to begin to integrate electronic technology into legal education is by establishing course Web sites.[22]

In this article, I will discuss both how today's law students learn through technology, and also theories of personality types and learning styles.   I will first review the few existing empirical studies on the subject.   Next, I will discuss course Web sites and how they can support, not replace, what happens in the traditional law school classroom.[23]   Then, I will discuss how my law school implemented TWEN[24] course Web pages, and discuss the results of a survey of TWEN usage by faculty members at Pace University School of Law. The survey indicates that although TWEN course Web sites have improved communication between students and professors and facilitated course administration, it is not yet certain that course Web sites influence how well professors teach and how well law students

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18. MADELEINE SCHACHTER, THE LAW PROFESSOR'S HANDBOOK: A PRACTICAL GUIDE TO TEACHING LAW 105 (2004).   In addition, use of images in teaching is of benefit to those students who are visual learners. *Id.*   For further discussion of visual and other types of learners, *see infra* Part II.B.2.

19. SCHACHATER, *supra* note 18, at 105.

20. *Id.*

21. *Id.* at 106.

22. Of course, a lot of what a course Web site does happens not in the classroom, but wherever a student happens to access it.

23. Because my focus is the traditional classroom setting, I am not going to discuss distance or online legal education.   For some of the concerns raised about the latter, *see supra* note 15.

24. TWEN (The West Education Network), http://lawschool.westlaw.com, provides course-building software so that law professors can create course Web pages to post on the World Wide Web.   Templates are provided, but the professor creates the content.   TWEN's chief competitor for the law school market is LexisNexis Web Courses, http://webcourses.lexisnexis.com.   Some schools use Blackboard, http://www.blackboard.com, and WebCT, http://www.webct.com, course-authoring programs that are not specifically designed for law schools.   All four programs have in common the fact that the courses reside on servers controlled by the vendors at locations remote from the participating schools.

learn. I will conclude with a series of recommendations for implementing course management software at law schools.

II. HOW TODAY'S LAW STUDENTS LEARN[25]

A. The Hypertext[26] Revolution

Students entering law school in the early years of the twenty-first century grew up using computers in the classroom, playing handheld video games, building Web sites for school projects,[27] downloading music from the Internet,[28] preparing PowerPoint presentations, communicating by instant messaging,[29] and performing searches on

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25. For further information on legal education methods, *see generally* Steven I. Friedland, *How We Teach: A Survey of Teaching Techniques in American Law Schools,* 20 SEATTLE UNIV. L.R. 1 (1996); Alice M. Thomas, *Laying the Foundation for Better Student Learning in the Twenty-First Century: Incorporating an Integrated Theory of Legal Education into Doctrinal Pedagogy,* 6 WIDENER L. SYMP. J. 49 (2000); and TEACHING THE LAW SCHOOL CURRICULUM (Steven Friedland & Gerald F. Hess eds., 2004).

26. Hypertext has been defined as "non-sequential writing—text that branches and allows choices to the reader, best read at an interactive screen ... a series of chunks connected by links which offer the reader different pathways." M. ETHAN KATSH, LAW IN A DIGITAL WORLD 199 (1995) (quoting THEODOR NELSON, LITERARY MACHINES 2 (1981)).

27. Seventeen percent of teenagers have created a Web page for a school project. LEVIN & ARAFEH, *supra* note 4, at 1.

28. Sixty percent of current college students have downloaded music files compared to 28% of the general population. JONES, *supra* note 11, at 2.

29. Forty-one percent of teenagers who go online report that they use instant messaging to solicit help with homework from classmates and teachers. "If we need help on homework, it's great because you can get 3 or 4 people working on a really tough problem together." AMANDA LENHART, THE INTERNET AND EDUCATION: FINDINGS OF THE PEW INTERNET & AMERICAN LIFE PROJECT (September 2001) *at* http://www.pewinternet.org/reports/toc.asp?Report=39. There is a downside to instant messaging and other technology in the classroom. *See, e.g.,* Johnson, *supra* note 14, in which Professor Johnson expresses "concern that students will disengage from class as they become preoccupied ... engaging in ... extracurricular activities if the laptops can access ... the Internet." *Id.* at 94. Some professors at Pace University School of Law report that in the wired classrooms, students engage in off-topic conversations during class using instant messaging; it is reasonable to think that they are not fully engaged in the class and are not getting much benefit from it. Another concern articulated is students who engage in on-topic conversations via instant messaging; by conducting a two-way conversation about the subject of the class, they deny the rest of the class the benefits of their insights. "Digital distractions," such as email, instant messaging, Google, and e-commerce, are hard to resist when a computer and Internet connection are available. Katie Hafner, *You There, at the Computer: Pay Attention,* N.Y. Times, Feb. 10, 2005, § G (Circuits), at G1. However, before instant messaging, students found ways to distract themselves by passing notes or doodling; it is probably

the Internet,[30] where they became accustomed to navigating a hypertext environment. Hypertext is part of the revolution ignited by the growth of digital information in the last decades of the twentieth century. According to Alan Purves, an expert on technology and literacy,

> There have been over the centuries three massive revolutions in the palpable shape of text, in the nature of the reader, and in the center of learning. The first came with the use of alphabetic print and the development of papyrus, the second came with the printing press and paper, and the third was the development of digital information.[31]

Hypertext differs dramatically from the traditional printed word, which is linear and two dimensional, and usually consists of words printed on paper or some other fixed or permanent medium; it has a beginning, a middle, and an end.[32] However, not all printed texts are meant to be accessed in a linear manner; most reference materials are not "linear narratives: travel guides, textbooks, *The World Almanac,* encyclopedias, dictionaries,"[33] and are usually not read from beginning to end. Nonetheless, these works do not approach the level of complexity of hypertext documents displayed on a computer screen:

> [P]rimary and secondary materials . . . interact more powerfully than before, as both are online side by side. Scholarly discussions . . . quote the original by pointing to it, and leave the reader to explore the original context, not just the few words or sentences most apposite . . . texts will acquire structured commentaries not by single hands but organized out of the work of many.[34]

Hypertext is nonlinear; it permits the reader to start and stop at different points by choosing links on a computer screen. "[E]ach reader can take a variety of different paths and ignore, reorder, change, delete, and supplement spaces and paths. [H]ypertext differs

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unfair to blame technology for students who do not pay attention during class.

30. Many students do not understand the critical distinction between performing searches on Google or other search engines and carrying out research, which may or may not involve the use of a search engine. Many believe that "everything is on the Internet," unaware of the inaccuracy of this statement. By not knowing what sources are available, they run the risk of doing incomplete and inherently flawed research. *See* Stephen Young, *The Impact of Search Engines on Research is Mixed; Simple Keyword Searches Don't Always Translate Well from Web to Other Media,* NAT'L L.J., Nov. 3, 2003, at S5.

31. Alan Purves, *Flies in the Web of Hypertext, in* HANDBOOK OF LITERACY AND TECHNOLOGY 235, 235 (David Reinking, et al. eds., Mahwah, N.J. 1998).

32. Lasso, *supra* note 12, at 8.

33. JAMES J. O'DONNELL, AVATARS OF THE WORD: FROM PAPYRUS TO CYBERSPACE 57 (1998).

34. *Id.* at 134.

from traditional text in being not nonlinear, but multilinear."[35] Printed text is inherently hierarchical; the "writer controls the text, the text controls the reader . . . ."[36] Hypertext, however, is non-hierarchical vis-à-vis the reader in that the reader chooses in what order (or whether) to access all the information available; hypertext is revolutionary because it allows the reader to create his own text—the text is no longer fixed or controlled by the writer. Each reader's text may be unique.[37] "[N]o two readers move through the Web in the same way, and even a single reader is hard put to retrace his or her journey."[38] Hypertext is multidimensional, allowing for multilayered, dynamic relationships between linked materials as well as between reader and text. It also speeds research and allows for better support of textual assertions; whereas in a linear environment, scholars supported assertions with citations, in a hypertext environment, we can support them with a link to the primary source.

Not only has hypertext changed the role of the reader; it has also changed the role of the author. This is due to the fact that in the "world of hypertext, there are a number of authors:

(a) the program[mers] . . . , (b) the writer of the original text, (c) the writers in the program (e.g., the sorters, spelling checkers . . .), (d) the networked authors, and (e) the readers who redact the text as they read."[39] The notion of authorial "control" over text may be an artifact of the print world.

B. Learner-Centered Teaching, Learning Styles, and the Use of Technology in Law Schools

1. Learner-Centered Education

Most law professors teaching today graduated from law school

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35. Purves, *supra* note 31, at 242-43.

36. *Id.* at 242.

37. One might argue that diligent readers have always had the path to variant experiences, if not texts, through careful reading of footnotes and the retrieval of the material cited therein; until the advent of Lexis, Westlaw and other online full-text databases, retrieving footnote materials involved a trip to the library, a disincentive for those who were not intellectually curious. In addition, intelligent readers know that footnotes contain more than citations, important as those are; footnotes also contain discussions of somewhat peripheral matters, some of which may provide illuminating insights that the reader should examine in order to have a complete experience of the text. Differences in ability and motivation will always lead to varying experiences.

38. Purves, *supra* note 31, at 238.

39. *Id.* at 242.

before computers were commonplace in the classroom,[40] and "for the most part still operate under the same format for teaching in the classroom that existed in the time of Harvard Law School Dean Christopher Langdell."[41] Law professors should remember, however, that many students have grown up in a different type of classroom environment,[42] and "are far ahead of their teachers in computer literacy."[43] "This 'digital disconnect' is a major cause of frustration among today's students."[44]

> Law schools must consider how the current communication revolution is transforming how 21st century students learn. . . . Entering law students learn better when they receive information through a medium that is more dynamic, interactive, and creative, than printed text. . . . If entering law students learn more efficiently when they receive information electronically, it would behoove law schools to integrate that technology to assist students' transition to the linear, printed-text based legal profession. In order to achieve the goals of legal education, however, it is essential to integrate electronic technology in a pedagogically sound way or we will accomplish little more than technologizing unsound teaching.[45]

The growth in the use of hypertext on the Internet and the control it gives to readers corresponds roughly with the expansion of learner-centered education.[46] "The innovation of hypertext technology is . . .

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40. The average age of male faculty was 53 in 1997, and the average age of female faculty was 44. Lee E. Teitelbaum, *First-Generation Issues: Access to Law School, in* PERSPECTIVES ON DIVERSITY: AALS SPECIAL COMMISSION ON MEETING THE CHALLENGES OF DIVERSITY IN AN ACADEMIC DEMOCRACY 6, *at* http://www.aals.org/teitelba.html (1997).

41. John Makdisi, *Improving Education-Delivery in the Twenty-First Century: The Vital Role of the Law Librarian*, 95 L. LIBR. J. 431, 431 (2003).

42. *See supra* notes 3-11 and accompanying text.

43. U.S. DEP'T OF EDUC., TOWARD A NEW GOLDEN AGE IN AMERICAN EDUCATION: HOW THE INTERNET, THE LAW AND TODAY'S STUDENTS ARE REVOLUTIONIZING EXPECTATIONS 11 (2004). This report goes on to state that a "move away from reliance on textbooks to the use of multimedia or online information ... offers many advantages, including ... enhancing learning opportunities in a format that engages today's web-savvy students." *Id.* at 43.

44. *Id.* at 45.

45. Lasso, *supra* note 12, at 23. Professor Lasso may be articulating a view of a "linear, printed-text based legal profession" that is no longer completely accurate. Law firms are moving aggressively to adopt technology in all aspects of practice. *See, e.g., supra* note 17 and accompanying text.

46. *See generally* CARL R. ROGERS, FREEDOM TO LEARN (1969). Professor Rogers argues that learning takes place only when the "subject matter is perceived by the student as having relevance for his own purposes." *Id.* at 158. It follows that students learn best when they have a goal, and believe that learning certain materials will help them achieve that goal. Professor Rogers also argues that "learning is facilitated when the student participates responsibly in the learning process." *Id.* at 162. A student learns most efficiently when "he chooses his own directions, helps to discover his own learning resources, formulates his own

beneficial in view of the research which shows that improved learning occurs where students are not mere passive recipients of knowledge but are actively engaged in the process of learning . . . ."[47] Although "[l]aw professors increasingly are teaching with 'active learning' strategies for the reason that actively engaged students absorb complex material better than if they had been taught traditionally . . . law professors generally seem resistant to embracing new teaching strategies."[48]   Such resistance is a mistake because learner-centered education empowers students by making them active participants in the educational process; these students will then determine the learning strategies that they need to succeed, which is particularly important for adult learners.[49]   In contrast, teacher-centered education, which is the norm in law schools, focuses on how teachers teach without taking into account how students learn; it does not take into account students' different learning styles,[50] making it inevitable that the professor will not communicate well with at least

problems, decides his own course of action, lives with the consequences ..." *Id.* Finally, Professor Rogers states that "much significant learning is acquired through doing." *Id.* Passive learning tends not to be very effective.

47. Rosalind Mason, *Where Does Computer Aided Learning Fit in the Tertiary Education Equation?,* 7 J. LAW & INFO. SCI. 105, 109 (1996). *See also* Kathy Marcel, *Can Law Be Taught Effectively Online?,* (Dec. 2002) *at* http://jurist.law.pitt.edu/lessons/lesdec02.php. This assumes that students working in a hypertext environment are actively interacting with the course materials; passive interaction will not result in better learning.

48. Robin A. Boyle, *Employing Active-Learning Techniques and Metacognition in Law School: Shifting Energy from Professor to Student,* 81 U. DET. MERCY L. REV. 1, 3-4 (2003). In general, more attention should be paid to teaching skills because "[p]rofessors must have keen insight into the differences in learning among ... students ... . [F]aculty members must learn about teaching. It should not be assumed that a learned person understands how people learn." Mel Levine, *College Graduates Aren't Ready for the Real World,* CHRON. HIGHER EDUC., Feb. 18, 2005, at B12.

49. *See generally* HOW PEOPLE LEARN: BRIDGING RESEARCH AND PRACTICE 19-24 (M. Suzanne Donovan et al. eds., Washington, D.C. 1999). Adult learners have been characterized as "self-directing ... possessing great readiness to learn,... voluntarily entering an educational activity with a life-centered, task-centered, or problem-centered orientation to learning, and ... internally motivated." Huey B. Long, *Understanding Adult Learners, in* ADULT LEARNING METHODS: A GUIDE FOR EFFECTIVE INSTRUCTION 23 (Michael W. Galbraith ed., 1990). The process of self-directed learning in adults begins with the establishment of goals and objectives, and involves "locating resources, [and] choosing learning strategies...." SHARAN B. MERRIAM & ROSEMARY S. CAFFARELLA, LEARNING IN ADULTHOOD: A COMPREHENSIVE GUIDE 44 (1991).

50. "A learning style is basically the preference or predisposition of an individual to perceive and process information in a particular way or combination of ways." LYNNE CELLI SARASIN, LEARNING STYLE PERSPECTIVES: IMPACT IN THE CLASSROOM 3 (1999). *See also infra* text accompanying notes 53-59.

some of her students.[51]

2. Learning Styles and Personality Types

Research in education suggests that there are several different learning styles. One of the most common and simple ways of analyzing learning styles is "according to the primary sense involved—visual, auditory, and tactile or kinesthetic."[52] Visual learners need visual aids, such as diagrams, charts, outlines, or drawings in order to understand new material.[53] They tend to prefer to learn about a concept holistically, rather than first to try to understand its component parts.[54] In contrast, auditory learners prefer to receive information orally, and to receive it as individual pieces; they can then move on to put the pieces together and understand the whole concept being presented.[55] They are able to think abstractly, and are analytic by nature.[56] Finally, tactile or kinesthetic "learners learn by doing. They rely on physical interaction during the learning process."[57] To understand a new concept, they need to be active participants in the classroom. They are "concrete by nature and prefer manipulatives."[58] A number of studies have recognized that "when teachers teach in ways that acknowledge and validate different styles of learning, students do better."[59] How should a good instructor reach out to students with these different learning styles?

Research on personality types is also having an impact on legal education.[60] The use of personality types in legal education is based

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51. Lasso, *supra* note 12, at 18.

52. Celli Sarasin, *supra* note 50, at 3. Celli Sarasin points out that learning may also be analyzed "according to psychological aspects of perception or according to the method of processing information." *Id.* In addition, she states that learning may be understood in terms of different types of intelligences. *Id.* However, an approach that focuses on the senses seems to be the most easily integrated into the classroom setting. *Id.* at 17.

53. *Id.*

54. *Id.* at 18.

55. *Id.* at 17.

56. *Id.*

57. *Id.* at 18.

58. *Id.*

59. *See, e.g.,* M.H. Sam Jacobson, *A Primer on Learning Styles: Reaching Every Student,* 25 SEATTLE U.L. REV. 139,142 (2001) [hereinafter Jacobson, *A Primer on Learning Styles*].

60. *See, e.g.,* Don Peters & Martha M. Peters, *Maybe That's Why I Do That: Psychological Type Theory, the Myers-Briggs Type Indicator, and Learning Legal Interviewing,* 35 N.Y.L. SCH. L. REV. 169 (1990); Vernellia L. Randall, *The Myers-Briggs Type Indicator, First Year Law Students and Performance,* 26 CUMB. L. REV. 63 (1995); M.H. Sam Jacobson, *Using the Myers-Briggs Type Indicator to*

on the theory that "[p]ersonality models of learning styles deal with the basic characteristics that a person brings to the learning situation."[61] One type of personality model in widespread use is the Myers-Briggs Type Indicator, which places individuals into sixteen different personality types based on their responses to a series of questions.[62] The questions "classify individuals according to four basic preferences: (1) extraversion versus introversion; (2) sensing versus intuitive; (3) thinking versus feeling; and (4) judgment versus perception."[63] The theory underlying Myers-Briggs is that individuals' preferences, as revealed by their answers to the questions posed by the test, "affect not only what they perceive, but how they draw conclusions about what they perceive."[64] Because an individual's personality type has implications for his learning style, Myers-Briggs has been "used to predict and develop the different teaching methods and environment best suited to each type."[65] Although Myers-Briggs cannot predict how well an individual will perform in law school,[66] it can predict what learning situations an individual will avoid[67] if given a choice. Therefore, it can also be used to predict which learning situations a particular student will seek out and in which he may flourish.

3. Using Technology to Teach Across Learning Styles

A law professor who teaches the way she was taught may not

Assess Learning Style: Type or Stereotype?, 33 WILLAMETTE L. REV. 261 (1997) [hereinafter Jacobson, *Using Myers-Briggs*]; Robin A. Boyle & Rita Dunn, *Teaching Law Students Through Individual Learning Styles,* 62 ALB. L. REV. 213 (1998); M.H. Sam Jacobson, *A Primer on Learning Styles, supra* note 59, in which the author states that "[m]any authors...have written extensively about learning styles, but the literature can be daunting to the uninitiated. A plethora of articles exists, and they all seem to be discussing different things." *Id.* at 141 (footnote omitted).

61. Randall, *supra* note 60, at 71.

62. For a good overview of Myers-Briggs, *see* Jacobson, *Using the Myers-Briggs Type Indicator to Assess Learning Style: Type or Stereotype?, supra* note 60, at 262-69.

63. Randall, *supra* note 60, at 75 (citing ISABEL BRIGGS MYERS & MARY H. MCCAULEY, MANUAL: A GUIDE TO THE DEVELOPMENT AND USE OF THE MYERS-BRIGGS TYPE INDICATOR 1 (1985)[hereinafter GUIDE TO MYERS-BRIGGS].

64. *Id.* at 76 (citing GUIDE TO MYERS-BRIGGS, *supra* note 63, at 2).

65. *Id.* (*citing* George H. Jensen, *Learning Styles, in* APPLICATION OF THE MYERS-BRIGGS TYPE INDICATOR IN HIGHER EDUCATION 182 (Judith A. Provost & Scott Anchors eds. 1987)). Such use of Myers-Briggs has been called into question by Professor M.H. Sam Jacobson, who has criticized its "stereotyping, lack of validity, and lack of reliability." Jacobson, *Using Myers-Briggs, supra* note 60, at 262.

66. Randall, *supra* note 60, at 77.

67. *Id.* at 76.

succeed with today's technologically adept students, and a law professor who teaches according to her own learning style "excludes those students whose learning styles differ from that [sic] of the professor."[68] Moreover, many of our students are likely to have graduated from colleges where use of electronic technology has been integrated into the curriculum[69] and wonder why it has not been integrated into the law school curriculum as well.

Recognizing that it is impossible to individualize instruction in most law school classrooms, Professors Robin A. Boyle and Rita Dunn suggest the following strategy: first, a professor should perform a diagnostic assessment of the class early in the semester so that she understands what types of learning styles are present.[70] Once the assessment is done, the professor will know the "overall 'learning-style majorities,' meaning the larger populations of certain types of styles."[71] She can then teach to the majority. If assessment is not feasible, then the professor should use a variety of different instructional methods, "ones that can be incorporated into most class periods and that are likely to reach a broad spectrum of students."[72] This should not be difficult to accomplish because "[e]veryone learns more when information is presented both visually and verbally."[73] Use of technology in the classroom may make it easier to accommodate the needs of the majority of the class.

The neglect of technology in the law school environment is all the more surprising given the fact that electronic tools in the classroom can not only improve the teaching process, but also expedite it. It can take many minutes of valuable classroom time to create a chart on the chalkboard or dry-erase white board, whereas with PowerPoint or an overhead projector, the same chart can be prepared ahead of time and displayed rapidly during class.[74] Of course, the value of using the board is that it allows a professor to create learning aids with his students, involving them in identifying and organizing the main

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68. Boyle, *supra* note 48, at 17.

69. "Nearly four-fifths of college students (nearly 79%) agree or strongly agree that Internet use has had a positive impact on their college academic experience." JONES, *supra* note 11, at 8. *See also* Debra S. Austin, *Educating the Lawyers of Tomorrow Using E-Curriculum*, May 2003 *at* http://jurist.law.pitt.edu/lessons/lesmay03.php, in which the author states that "[i]ncreasingly students will demand that institutions of higher education provide technology-rich learning environments."

70. Boyle & Dunn, *supra* note 60, at 216.

71. *Id.*

72. *Id.*

73. Richard M. Felder & Barbara A. Solomon, *Learning Styles and Strategies, at* http://www.ncsu.edu/felder-public/ILSdir/styles.htm (last visited Jan. 5, 2005).

74. *See* Lasso, *supra* note 12, at 49.

concepts and rules of a body of law. In addition, the board allows the professor to illustrate his lecture and address spontaneously any questions that come up during the class. And with PowerPoint and other learning aids created before the fact, there is always the danger of "spoon feeding" the material to the students.

Law schools might be more eager to adopt electronic technology if there were a number of large-scale studies showing incontrovertibly that students learn better when technology is introduced into the law school curriculum. Unfortunately, only a few small-scale studies and anecdotal evidence support this assertion.[75] The truth is that "[t]hose who study technology's role in education . . . readily acknowledge that no one really knows whether the technology deployed in today's classrooms help [sic] students learn better or more."[76] In 1987, after a study conducted at the Chicago-Kent College of Law, Professors David Maume and Ronald Staudt wrote that "[c]omputer use is positively related to academic performance in the first year of law school."[77] In a 1991 review of the literature on the use of computer-assisted instruction in legal education, Professor Paul Teich stated that computer-assisted instruction (CAI) improves learning while reducing the time needed for instruction, and suggested that CAI might have significant benefits for legal education.[78]

In 1997, Professor Richard Warner reported on Chicago-Kent College of Law's experimental notebook computer section, which required all students to own laptop computers; Chicago-Kent then provided each student with electronic versions of the assigned texts and loaded them on the students' laptops. When surveyed, half of the students "indicated that they would prefer a course that had materials in electronic form (in addition to print) over one that had only a

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75. *See, e.g.,* David J. Maume, Jr. & Ronald W. Staudt, *Computer Use and Success in the First Year of Law School,* 37 J. LEGAL EDUC. 388, 396 (1987); Paul Teich, *How Effective is Computer-Assisted Instruction? An Evaluation for Legal Educators,* 41 J. LEGAL EDUC. 489 (1991); Richard Warner, *Teaching Electronically: The Chicago-Kent Experiment,* 20 SEATTLE U.L. REV. 383, 396 (1997); Andrea L. Johnson, *Distance Learning and Technology in Legal Education: A 21st Century Experiment,* 7 ALB. L.J. SCI. & TECH. 213, 214 (1997).

76. Michael Heise, *Closing One Gap But Opening Another?: A Response to Dean Perritt and Comments on the Internet, Law Schools, and Legal Education,* 33 IND. L. REV. 275, 287 (1999).

77. Maume & Staudt, *supra* note 75, at 396. Interestingly, computer use was more beneficial to students who entered law school with lower LSAT scores than with higher LSAT scores. *Id.* at 398. The authors speculate that improved computer skills may help less academically gifted students "'catch up' academically with their more talented colleagues." *Id.*

78. *See generally* Teich, *supra* note 75.

book."[79]   Professor Warner concluded that technology helped to make students more efficient learners,[80] thereby improving the ability of their teachers to achieve most of the goals of legal education: 1) to learn the black letter rules, i.e., relevant legal rules for a particular area of law; 2) to understand the rationale behind these rules; 3) to develop the ability to analyze legal issues; and 4) to learn to research and write.[81]

Professor Andrea Johnson conducted a thorough[82] empirical study in 1996. As a pilot study, she taught an advanced telecommunications course simultaneously to students at the California Western School of Law in San Diego and at the Cleveland-Marshall College of Law in Cleveland.   With eight students from each law school, the course included   an   Internet   component,   teleconferencing, videoconferencing, email, and an electronic casebook.   As a control, Professor Johnson also taught a conventional telecommunications course that met in a regular law school setting.[83]   At the end of the semester, Professor Johnson concluded that the use of technology had been a valid supplement to the learning process by "facilitat[ing] interaction among students distanced from each other,"[84] by providing access to "information resources, scholars and professional [sic] in a given area,"[85] and by "enabl[ing] more effective use of class time."[86]

There has been no formal, large-scale empirical study to gauge the effect of technology on students who are entering law school in the twenty-first century.   However, Professor Rogelio Lasso believes that "[c]ommon sense leads to the conclusion that electronic technology enhances the learning of these digitally raised students.   [E]lectronic teaching   is   critical   in   enhancing   the   learning   experience   of

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79.   Warner, *supra* note 75, at 396.

80.   This happened in two ways.   Students used their notebook computers to prepare for class, take notes, and study for final exams.   In addition, instructors used the computers with projectors in class to highlight passages on which they particularly wanted students to focus; this technique was successful in furthering learning because students, especially first years, find it difficult to pinpoint relevant language in the cases they are reading. *Id.* at 394.

81.   *Id.* at 384-85.

82.   Johnson, *supra* note 75.   Although the study was thorough and methodologically sound, the data set was small, consisting of only sixteen students.

83.   *Id.* at 214.

84.   *Id.* at 245.

85.   *Id.*

86.   *Id.* Students were given electronic access to "guidelines for formulating" the arguments that might be raised during the teleconference.   Professor Johnson also monitored the discussion list and had her students submit position papers before the teleconference sessions.   She felt this helped her "retain some control" over the teleconference and make it more productive. *Id.* at 242.

electronically raised students."[87] Unfortunately, the evidence that Professor Lasso offers to support this proposition is "mostly anecdotal."[88] Although Professor Lasso did not conduct an empirical study, he did observe his students closely and seek out ways to improve his teaching and his students' learning. He noticed that his first-year students were not performing as well as first-year students had performed in the past,[89] and became convinced that this was because they learned differently than his students had in the past.[90] Professor Lasso adopted a number of different strategies to address the problem. He began by creating handouts that were distributed prior to each class; initially, these materials were given out in hardcopy, but later they were posted to a course Web site, from which students could print them out themselves.[91] Professor Lasso also provided daily summaries of previously discussed substantive concepts. At first, he wrote these summaries on the blackboard; when this proved to take too much class time, he put the summaries on computer-generated slides and projected them on a large screen using an LCD projector.[92] Professor Lasso had been in the habit of regularly administering traditional multiple-choice quizzes to reinforce and test students' analytical skills. The problem with the test was that, because of the way Professor Lasso structured it, not all students were required to prepare for it; only the students "on call" for that week were actually required to be ready to answer.[93] Professor Lasso turned to technology in order to involve the entire class. To improve participation, he turned the quiz into a computer-generated slide show that involved all the students, was renamed "Who Wants to be a CivPro (or Torts) Survivor?"[94] and used the music from the television show "Who Wants to be a Millionaire." Professor Lasso reported that the "'game-show' format . . . led to increased and more lively participation from the whole class."[95]

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87. Lasso, *supra* note 12, at 48.

88. *Id.*

89. Although their LSAT scores and undergraduate GPAs were lower than those of students from earlier classes had been, current students grasped concepts quickly, and possessed unusual insights, perspectives, and creativity. *Id.*

90. *Id.*

91. *Id.* It could be argued that by providing these handouts, Professor Lasso was "spoon feeding" his students. *See supra* text accompanying note 74.

92. *Id.* at 49.

93. *Id.* at 49-50.

94. *Id.* at 50. Professor Lasso reports that he "used the 'Survivor' name [and the 'Millionaire' music] because many of [his] students regularly watch the popular 'reality TV' show 'Survivor' and the game show 'Who Wants to Be a Millionaire.'" *Id.* at 50 n. 260.

95. *Id.* Professor Lasso lets the students know ahead of time the composition of

After using electronic technology, Professor Lasso concluded that "use of screen-based electronic technology generates better classroom discussion because students weaned on screen-based technology relate naturally to this methodology."[96] Students' mid-term evaluations stated that the handouts that Professor Lasso provided, access to materials on the course Web site, and computer-assisted exercises were helpful; these evaluations were consistent over several years. Finally, bringing electronic technology into the classroom resulted in much improved end-of-the-semester student evaluations, which, according to Professor Lasso, correlate positively with teacher effectiveness.[97]

Other commentators do not agree with Professor Lasso's sanguine view of student evaluations. According to Professor Gregory S. Munro, "student evaluations of teachers often lack the essential requisites of good assessment—validity, reliability, and fairness."[98] In addition, Professor Lasso does not report whether student learning, as measured by objective standards, also improved as a result of the change in the format of the course.[99]

Although there have been no large-scale empirical studies, there have been several recent small studies that indicate the promise that technology holds for legal education.[100] At Western State University

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the team. During class, the teams gather "on opposite sides of the classroom. Using an LCD projector connected to a computer, [he] project[s] the slides onto a screen and the first team to raise a hand answers the projected question." Two points are awarded for correct answers and analysis; if the team answers incorrectly, the other team is allowed to answer and may call on another class member as a "lifeline." *Id.*

96. *Id.* at 50-51.

97. *Id.* at 51-52 n.265-66.

98. GREGORY S. MUNRO, OUTCOMES ASSESSMENT FOR LAW SCHOOLS 135-36 (2000) (quoting 1 MICHAEL JOSEPHSON, LEARNING AND EVALUATION IN LAW SCHOOL 5 (1984)).

99. The legal academy has been criticized for failing to address learning outcomes effectively. *See, e.g.,* Dennis R. Honabach, *Leadership in Legal Education Symposium III: Precision Teaching in Law School: An Essay in Support of Student-Centered Teaching and Assessment,* 34 U. TOL. L. REV. 95, 99 (2002). Grades do not measure how well students learn; nor do teacher evaluations, whether done by students or peers. Although "legal educators opt for an approach that focuses on the teaching process itself," the reality is that there is no solid evidence that "good teaching—at least as an abstract concept—actually leads to high quality learning." *Id.* at 100-01. This is because "good" teaching might not be "good" for all students in all situations. *Id.* at 101. *See supra* text accompanying notes 52-59.

100. In addition to the studies discussed here, a recent newspaper article documents Professor Paul Caron's use of small wireless keypads (clickers) linked to a computer in his tax and estate law courses. Katie Hafner, *In Class, the Audience Weighs In,* N.Y. TIMES, Apr. 29, 2004, at G1. "Students answer questions not by raising their hands but by punching buttons, with the results

College of Law, where course Web pages are used extensively to communicate with students, disclose detailed instructional objectives against which students can measure their progress, provide notetaking outlines and "graphic organizers, including mindmaps, hierarchy charts and flowcharts,"[101] and other guides to student learning, "preliminary assessment of student outcomes show[s] a decrease in overall student attrition and increases in student scores. . . on essay tests (10%-34% in raw scores), on multiple choice tests (8%-16% increase in raw scores) and on other skills assessment (as high as 106%)."[102]

A small study done by Professor N.O. Stockmeyer at Thomas M. Cooley Law School found a strong positive correlation between use of TWEN and student grades.[103] Professor Stockmeyer taught Contracts II during the fall semester 2002. His TWEN site included a discussion forum, downloadable classroom overheads, announcements, links to CALI lessons, exam-writing advice, and review quizzes with instant feedback.[104] Professor Stockmeyer required students to sign up for TWEN, but not necessarily to access and use it. At the end of the semester, he compared the grades received by the students to the number of times they accessed a feature of the site, and found that "active participation in online learning significantly increases student grades independently of other

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appearing on a screen in the front of the room." *Id.* According to Professor Caron, the technique encourages attendance because students cannot get credit for answering questions correctly if they are not in class. In addition, it allows him to monitor an individual student's performance more closely. *Id.* Professor Caron is able to engage all the students in his class at once, not one at a time, thereby embracing the Socratic method. *Id.* An additional benefit is that use of the clickers reduces the "amount of in-class instant messaging and Web browsing by students with laptops. ... '[N]o one is going to shop on L.L. Bean while I'm talking because they know they'll have to answer a question.'" *Id.* Professors Caron and Gely discuss at length the use of CPS, the Classroom Performance System, an "integrated system consisting of software downloaded onto the teacher's laptop, handheld wireless transmitters supplied to students, and a wireless receiver attached to the teacher's laptop in the class," in a recent article. Paul L. Caron & Rafael Gely, *Taking Back the Law School Classroom: Using Technology to Foster Active Student Learning*, 54 J. LEGAL EDUC. 551, 560 (2004). They conclude that CPS encourages active learning by "requiring *each* student to answer *each* question." *Id.* at 561.

101. Michael Schwartz, *Using Course Webpages to Fill Gaps Within Traditional Law School Instruction*, (Mar. 2003), *at*
http://jurist.law.pitt.edu/lessons/lesmar03.php. Professor Schwartz also notes that Western State plans to conduct further, more targeted assessment and revision of the course Web pages as needed. *Id.*

102. *Id.*

103. N.O. Stockmeyer, *Link Between TWEN Use and Grades Confirmed*, (Nov. 2003), *at* http://jurist.law.pitt.edu/lessons/lesnov03.php.

104. *Id.*

variables."[105]

III. USING COURSE WEB SITES TO ENHANCE THE CLASSROOM EXPERIENCE

Professor Lasso found that students responded positively to having materials posted to a course Web site. This is true whether the course is a large lecture-style class, a course taught by the Socratic method, or a small seminar.[106] LexisNexis and Westlaw have marketed course-building software packages[107] that have many features in common, and are designed specifically for use by law schools. These packages (LexisNexis Web Courses and TWEN) are in use at most ABA-accredited law schools today.[108]

There are a number of benefits to providing materials over a course Web site. One important aspect is that it allows all the students in the

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105. *Id.* There are at least two problems with Professor Stockmeyer's analysis. First, he provides us with no data on which features were accessed and how often. Second, accessing a feature of the Web site means nothing other than that the student clicked on it. There is no way to know whether the student did the practice problems, for example, or engaged in any learning when he accessed the Web site. For instance, a particularly forgetful student might need to access the syllabus repeatedly throughout the semester. It would be difficult to correlate multiple downloads of the syllabus with enhanced learning. I am indebted to Professor Bridget Crawford for this insight. Despite the flaws inherent in the analysis, the results of Professor Stockmeyer's study corresponded with the results of a study done by Professor Charles G. Geiss, an economist at the University of Missouri – Columbia. Professor Geiss studied a microeconomics class of 1,100 students whose course materials were posted on WebCT. He found that "[a]ctive participation in online activities ... produced a 0.072 increase in the final grade ... about three-fourths of a letter grade." Charles G. Geiss, *Participation and Benefits of Computer-Assisted Learning: Results from a Pilot Class, at* https://courses.missouri.edu/info/student-benefits.shtml. As a result of this experience, Professor Geiss feels that computer-assisted learning has the potential to improve teaching in large lecture courses. *Id.*

106. Michael A. Geist, *Where Can You Go Today?: The Computerization of Legal Education from Workbooks to the Web,* 11 HARV. J.L. & TECH. 141, 159 (1997).

107. The Lexis product is available at http://webcourses.lexisnexis.com. The Westlaw product is available at http://lawschool.westlaw.com.

108. According to the TWEN home page, http://lawschool.westlaw.com, TWEN is used by professors at over 150 law schools. (As of August 2004, there were 189 law schools approved by the American Bar Association. American Bar Association, *ABA-Approved Law Schools, available at* http://www.abanet.org/legaled/approvedlawschools/approved.html (last visited Dec. 16, 2004)). LexisNexis does not disclose the number of law schools at which Web Courses is used. Blackboard (http://www.blackboard.com) and WebCT (http://www.webct.com) are used at a small number of law schools. Some universities are creating open-source course software rather than rely on commercial products. Jeffrey R. Young, *Universities Offer Homegrown Course Software,* CHRON. HIGHER EDUC., July 23, 2004, at 27.

class to have access to the same information. Students can access the site whenever they want and from off campus, which helps to level the playing field for evening students. Should the professor want to tweak the syllabus midway through the semester, that task is easily accomplished over the Web site. Class announcements are easily posted.[109] A course Web site saves time and work for faculty assistants, who no longer are required to photocopy and distribute course handouts, potentially resulting in significant institutional savings; the professor can direct students to the Web site instead. Items on the syllabus can be linked by hypertext to related information on the World Wide Web, such as primary or secondary authority, making it more likely that students will read it than if they had to go to the library to look up the same material.[110] Some professors take advantage of all of the features that the course software offers, while others post only a syllabus and basic information about the course.[111] Professors are limited only by their creativity, interest in technology, and by the amount of time they have to devote to the task.[112] Some of the most common elements of course Web sites are discussed below.

A. Syllabus

A link to the course syllabus is the component most frequently found on law school course Web pages, as well as the most often visited component.[113] It is simple to post the syllabus, because in most cases it is already a word-processed document. Items on the syllabus can be embedded, where appropriate, with links to the LexisNexis or Westlaw databases, depending on which software package a school has chosen, or to materials on the World Wide

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109. Of course, course announcements are of value only if students read them. On TWEN, it is easy to see whether students are accessing the Web site and which components of it they are using because the software has that tracking feature. One study has shown that success in a course, as measured by final grade, is correlated with the number of times a student accessed the course Web site. *See supra* note 105 and accompanying text.

110. Catherine Sheldrick Ross, *Reading in a Digital Age, at* http://www.camls.org/ce/ross.pdf. Professor Ross is referring to a study by JSTOR (http://www.jstor.org), a digital archive of scholarly journals, which showed that students "use online versions of journals twenty times as much as they use the corresponding paper." Although Professor Ross's remarks were directed at materials accessed for library research projects, it is reasonable to assume that the same would be true of materials accessed for course reading.

111. *See infra* Part V for information about TWEN use at Pace University School of Law.

112. *See infra* text accompanying notes 135-36.

113. Geist, *supra* note 106, at 165.

Web, a great convenience for students.

B. *Course Information and Announcements*

"Course Information and Announcements" is a useful rubric under which one can group information such as the assignment for the first class of the semester, course objectives, professor's office hours, attendance policies, textbooks used, and classes cancelled and rescheduled. There seems to be great variation in the type of information posted under this heading.[114]

C. *Class Assignments*

The course Web site is a logical place to post class assignments. These may include required readings, problems or issues to consider for the next class, or assignments to submit to the professor.[115] By posting assignments to the course Web site, the professor ensures that they are available twenty-four hours a day, and that there is no confusion as to their nature. The professor may include interactive computer exercises she created herself as well as exercises provided by CALI, the Center for Computer-Assisted Legal Instruction.[116]

Professor Teich studied the use of computer-assisted instruction (CAI) in the late 1980s and early 1990s, and his findings are relevant to an understanding of CAI in the current environment. In a 1986 literature review, he reported that studies had shown CAI to be a significant supplement to traditional instruction methods used by law professors.[117] Although CAI is best used in conjunction with other teaching techniques, it may improve students' exam performance and reduce their study time.[118] Professor Teich speculated that CAI enhances students' performance because it facilitates frequent testing

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114. I post all of this information under "Course Information" at my TWEN site. Professor Bridget Crawford reports that under "Course Information," she posts the course meeting time, the first assignment, information about the textbook, and any last-minute announcements. Everything else goes under other links. Memorandum from Bridget Crawford, Associate Professor, Pace University School of Law, to the author (Jan. 20, 2005) (on file with author).

115. Geist, *supra* note 106, at 165.

116. Lasso, *supra* note 12, n.172. I strongly encourage my Advanced Legal Research students to work through the CALI exercises that are relevant to the course. They are useful for diagnostic purposes and for review.

117. Paul F. Teich, *Research on American Law Teaching: Is There a Case Against the Case System?*, 36 J. LEGAL EDUC. 167, 177 (1986) (arguing that none of the most commonly used teaching methods in law schools is uniquely effective, and that the techniques of empirical science should be used to improve law teaching).

118. Teich, *supra* note 75, at 492-95.

and quick feedback, and motivates a student to keep working until he or she has understood a concept.[119] Professor Teich's observations are corroborated by Professor Tracy L. McGaugh, who in a recent article opined that "a computer program that requires students to interact with the information by answering simple questions or completing exercises will help keep their attention so they can absorb the information in the reading."[120] Professors may use the online discussion forums that are part of their course Web sites to post feedback about assignments, or they may post sample answers to short questions. In either case, frequent testing gives professors the opportunity to adjust their teaching; if they see that a significant portion of the class does not understand a particular concept, they can go back and review it immediately instead of moving on to a new concept. This approach makes for much more student-oriented, effective teaching.

D. Course Readings

Course readings posted on the Web site may take the form of the actual materials students are assigned to read for the class or links to those materials. If the materials posted on the Web site are primary legal authority, most, if not all, will be in the public domain, so copyright issues should not apply.[121] Any secondary authority that is posted, however, will most likely be copyrighted, and fair use guidelines will apply.[122] Some professors who assign a traditional

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119. *Id.* at 493.

120. Tracy L. McGaugh, *Generation X in Law School: The Dying of the Light or the Dawn of a New Day?*, 9 J. LEGAL WRITING INST. 119, 136 (2003).

121. "It is well-established that judicial decisions and statutes are in the public domain." Danielson v. Winchester-Conant Properties, 322 F. 3d 26, 38 (1st Cir. 2003). *See also* Wheaton v. Peters, 33 U.S. 591 (1834) (holding that judicial opinions are not copyrightable), and Banks v. Manchester, 128 U.S. 244 (1888) (holding that judicial opinions are in the public domain).

122. Title 17, Section 107 of the United States Code provides that "the fair use of a copyrighted work ... for purposes such as ... teaching ... scholarship or research, is not an infringement of copyright. In determining whether the use made of a work in any particular case is fair use the factors to be considered shall include:
(1) The purpose and character of the use, including whether such use is a commercial nature or is for nonprofit education purposes;
(2) The nature of the copyrighted work;
(3) The amount and substantiality of the portion used in relation to the copyrighted work as a whole;
(4) The effect upon the potential market for or value of the copyrighted work."
17 U.S.C. § 107 (2000). Not all four of the above factors need to weigh in favor of fair use, but the more that do, the clearer it is that the doctrine of fair use applies in a particular situation. A good explanation of copyright law in general and of fair use in particular from an educator's viewpoint is provided by MARC LINDSEY,

hardcopy casebook post supplements to superseded casebook materials on their course Web sites.[123]

E. Past or Sample Exams and Answers

A number of professors post past or sample exams[124] and answers on their course Web sites at the request of their students. It is much more convenient for students to retrieve exams from a course Web site than to consult the bound volumes of exams that most academic law libraries make available to students; they are easily printed off the Web site, and are accessible from home twenty-four hours a day. In addition, many libraries are now posting exams to their Web sites rather than making them available in hardcopy.[125] It may be that by posting exams in multiple locations (hardcopy volumes, library Web sites, and course Web sites), law schools are actually making it unnecessarily confusing for law students to access this useful information.[126] By routinely posting past exams and sample answers on TWEN, law professors would eliminate this element of confusion and decrease library administrative time.

F. Discussion Groups

One of the most helpful features of the various course-building software packages available on the market today is the email discussion list, "an increasingly popular means of extending classes beyond their traditional in-class limits . . . ."[127] Some professors treat

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COPYRIGHT LAW ON CAMPUS (2003).

123. *See, e.g.,* Slomanson, *supra* note 17, at 227. Professor Slomanson encourages moving away from print materials and posting course materials electronically, thereby making changes "instantaneously, rather than waiting for the next edition or the annual supplement." *Id.*

124. Students are routinely urged to review exams given by their professors in previous years as an effective way to prepare for finals. *See, e.g.,* GARY A. MUNNEKE, HOW TO SUCCEED IN LAW SCHOOL (3d ed. 2001), and RICHARD MICHAEL FISCHL & JEREMY PAUL, GETTING TO MAYBE: HOW TO EXCEL ON LAW SCHOOL EXAMS (1999).

125. *See, e.g.,* http://library.law.pace.edu/. Exams are available over a password-protected Web page.

126. At Pace University School of Law, exams were bound and made available through the Law Library through the fall of 2000. Since then, some exams have been released to the Library for posting on the Library Web site, while others are posted on individual professors' TWEN course Web sites. As a result, students now have three places to look for exams.

127. Geist, *supra* note 106, at 169. *See also* Johnny Burris et al., *Venturing Into the On-Line Wilderness: Some Lessons Learned,* (Feb. 2003) *at* http://jurist.law.pitt.edu/lessons/lesfeb03.php. According to the authors, "discussion threads provided a goldmine of information, indicating what students

contributing to the email discussion group as an optional part of the course, while others consider posting to it mandatory, with it having an effect on students' grades.[128]   There is always the danger that opinionated students will dominate the discussion, but professors have found that some students who are reluctant to speak in class are comfortable articulating their thoughts via email.[129]   The static, centralized board offered on TWEN is better than a "pushed" email group because it is easier to keep track of discussions and refer to and archive past exchanges.[130]   Other benefits[131] of the email discussion list are that it gives students additional opportunities to write, although the format does not encourage extensive analysis and there is typically no feedback by the professor on the writing itself. One of my colleagues reports that late every semester, the discussion lists for his intellectual property and administrative law courses turn into class-wide study groups. "Students post questions that often are answered by classmates, and I post my own clarifications from time-to-time."[132]

G. How Much Time Does It Take to Set Up and Run a Course Web Site?

Many professors are reluctant to establish course Web sites because of the amount of work Web sites are thought to require, or because they fear they lack the necessary technical skills. Creating a simple course Web site with a syllabus and course announcements is not technically challenging, and does not require much time; even updating it every semester will require very little time or effort.

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understood, what they did not and what lay in between ... " Moreover, the "discussion thread builds in deliberative and considered responses." *Id.*

128. If the quality of the postings is low, students may become resentful of the time it takes to review them. "...[A] course Website has the potential to develop into yet another claim on a student's time." Geist, *supra* note 106, at 161.

129. It is interesting to note that 46% of college students interviewed by the Pew Internet & American Life Project said that "email is a communication tool that allows them to more freely express their ideas to professors." JONES, *supra* note 11, at 9.

130. Memorandum from Anthony Varona, Associate Professor, Pace University School of Law, to the author (Feb. 1, 2005) (on file with author).

131. Fifty-six percent of undergraduate "students believe that email has enhanced their relationship with professors." *Id.* at 10. This is true despite the fact that only 19% of students "communicate more with their professors via email than face-to-face," and that 51% "seldom contact professors via email." *Id.* at 9. Generational factors may come into play, because the students "who felt positively about email communication with a professor tended to be younger students." *Id.* at 11.

132. Memorandum from Anthony Varona, Associate Professor, Pace University School of Law, to the author (Oct. 1, 2004) (on file with author).

However, setting up and maintaining a site with more content and more features will require a proportional investment of time.[133] Once a faculty member becomes comfortable using a particular course management program and spends time getting acquainted with its features, the time required to set up and maintain a course Web site declines noticeably. One can even use the same basic format and copy the course entirely in succeeding semesters, as long as one avoids becoming wedded to that format and continues to innovate. I spend approximately an hour at the beginning of each semester setting up my Advanced Legal Research course on TWEN. Prior to that hour, I revise all the documents that are to be posted to the course Web site as Microsoft Word documents. During that hour, I post my syllabus, set up an introductory screen with a reading assignment for the first class, post general information about the course, post instructions for completion of the major work product for the course, post the outline for the first class (there is one for each unit of the course—these are posted during the semester as we finish one unit and move on to the next), and check off the relevant CALI exercises. Setting up the course used to take several hours at the beginning of the semester, but as I have become more adept with TWEN and because I have a course structure with which I am comfortable, the time demands have declined. There is ongoing maintenance work once the semester begins and I begin to post unit outlines; these documents are available electronically, and posting them to TWEN is not onerous.[134] Because I teach a skill, not a doctrinal, course and posting is not mandatory, my email discussion list is not particularly active; however, I do monitor it on nights and weekends and respond promptly to questions and issues that students raise.

The email discussion group is an area of concern for law faculty contemplating setting up a course Web site. Professors are potentially available to their students twenty-four hours a day, seven days a week, and some students expect immediate responses to email questions.[135] Depending on the level of engagement, substantial

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133. Lasso, *supra* note 12, at 52-53.

134. With good scanning equipment, posting materials created in some other word-processing program than Word is not difficult.

135. *See generally* JUDITH V. BOETTCHER & RITA-MARIE CONRAD, FACULTY GUIDE FOR MOVING TEACHING AND LEARNING TO THE WEB 95-97 (Mission Viejo, Cal. 1999). The authors present a number of survival strategies for faculty members who have email discussion lists, including establishing a 24-hour response time; announcing that there will be times when the 24-hour response time will be suspended such as during vacations and conferences; and setting times when the response turnaround will be shorter (email office hours), e.g., right before

amounts of a faculty member's time may be required that might otherwise be spent on scholarship or service, both activities that have traditionally been highly valued within academia.[136]

Nonetheless, integrating technology into their teaching is something faculty must do or risk becoming hopelessly out of step with the students entering law school in the twenty-first century. Setting up a course Web site can enable faculty to begin the transition from "traditional models of classroom learning to the newer models of information age learning."[137] It is a good way to start to experiment with the use of technology. As Professor Peter Martin has written, "[u]nless law schools succeed in changing old patterns of teaching, and unless they succeed in organizing their human resources for teaching and research in a networked world, that very connectivity is likely to marginalize their role."[138]

IV. IMPLEMENTING TWEN AT PACE UNIVERSITY SCHOOL OF LAW

Pace University School of Law's transition to the networked world was not smooth at first. Beginning in the late 1990s, the Law School began to search for ways to incorporate technology into the curriculum as cheaply and efficiently as possible. An important early goal was to explore course software because we felt that course Web sites would be an effective means of communicating with our students, especially students in the sizable part-time division.[139] The University was exploring the course management software offered by a number of vendors, but had not yet come to an agreement with any of them; the Law School did not want to wait for the University to act.   We considered creating course Web sites ourselves, but abandoned the idea because of lack of time and staff.[140] Using TWEN was a possibility, but at that time it was being marketed as a fairly expensive add-on to the academic Westlaw subscription, and there were no extra funds available. The Law School finally decided upon WebCourse in a Box, which LexisNexis was offering to law schools as a free service.   Although not particularly refined,

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when assignments are due. *Id.* at 96.

136. *See generally* Geist, *supra* note 106, at 162, and Thomas, *supra* note 25, at 52-53.

137. BOETTCHER & CONRAD, *supra* note 135, at 25.

138. Peter W. Martin, *Information Technology and U.S. Legal Education: Opportunities, Challenges, and Threats,* 52 J. LEGAL EDUC. 506, 514 (2002).

139. Our fall 2004 enrollment was 532 full-time J.D. students; 238 part-time students; 12 full-time LL.M. students; 7 part-time LL.M. students; and 2 currently registered S.J.D. students.

140. *See generally* Young, *supra* note 108.

WebCourse allowed the Law School to develop course Web sites with a minimal investment of time and resources.

Using WebCourse, course Web sites were created for most of the full-time and adjunct faculty. In addition, course email discussion groups, for which students had to sign up separately from WebCourse, were established and maintained by Law School Computer Services. This system was unsophisticated, but worked fairly well for several years until LexisNexis retired WebCourse in a Box during academic year 1999-2000.

In the meantime, the University had chosen Blackboard as its online course management system. The Law School used Blackboard for a year, but ultimately decided that a program that had been designed for use in legal education would better fit its needs. In the spring of 2002, the search for course management software resumed.

Several products, including TWEN, were evaluated. By this point, there was no additional charge for use of TWEN—its cost was included in the cost of the Law Library's Westlaw subscription. In addition, a number of other law library directors who were using TWEN for their courses recommended it highly. Pace ultimately chose TWEN, and began implementing it in the summer of 2002. The Law School has used it ever since.

V. FACULTY TWEN USAGE SURVEY

In order to determine how TWEN is being used at Pace University School of Law, a TWEN usage survey was distributed to the full-time faculty in December 2004. Of the forty members of the full-time faculty, twenty-six completed the survey, a response rate of 65%. The blank survey instrument is reproduced as Appendix 1, while the survey with tabulated responses is reproduced as Appendix 2. The average age of all faculty members who responded to the survey was 53.5; the median age of respondents was also 53.5

Of the survey respondents, nineteen (73%), use TWEN personally to administer their courses, while four (15%) assign their faculty assistants to use TWEN for them and three (almost 12%) make no use of it at all.[141] *See* Figure A.

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141. *See* App. 2, question 1. These faculty members do have TWEN sites, but they consist only of the syllabus and first assignment; there is no ongoing use after this initial posting, which is done by a faculty assistant.

Figure A. Faculty Use of TWEN
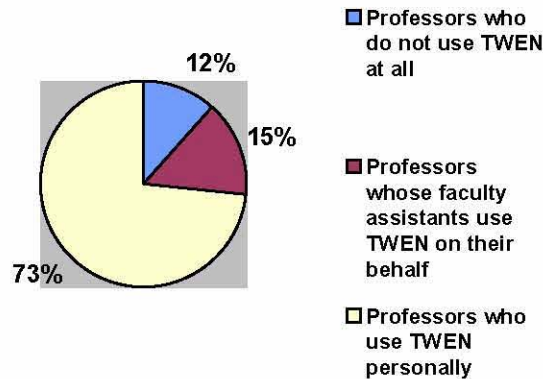
Thus, 27% of the survey respondents do not use TWEN personally. Of those respondents who use TWEN personally, the average age was 51.2, and the median age was 60. The average age of the non-TWEN users was 59.7, and the median was 64. TWEN users, therefore, tend to be younger than non-TWEN users, although not dramatically so.

Those faculty members who do not use TWEN themselves do, however, manage their own email and word processing, and perform legal research using LexisNexis and/or Westlaw.[142] Clearly, they are not technophobes, even if few of the non-TWEN users take advantage of data processing software or use some of the other sophisticated functions available on their computers.[143]

Why do certain faculty members not use TWEN? Several reasons were cited, including unspecified technical difficulties with TWEN; overall reluctance to use technology in teaching; not understanding why they would need to use TWEN; and using another course management software package (28.5% each).[144] Other reasons mentioned were student resistance and reluctance to use TWEN in particular (14% each).[145]

The TWEN users also manage their own email and word processing; as a group they tend to be more comfortable doing non-legal research online and going beyond LexisNexis and Westlaw for their legal-research needs.[146] In addition, the TWEN users are more likely to be engaged in Internet authoring and to use their computers

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142. *See* App. 2, question 2.
143. See *id.*
144. *See* App. 2, question 9
145. *Id.* It was not clear why this respondent was reluctant to use TWEN.
146. *See* App. 2, question 3.

to create multimedia presentations.[147] Personal use of TWEN to manage courses tends, therefore, to correlate with a greater willingness to use technology in general.

Approximately one fifth (21%) of the faculty members who use TWEN at Pace access it five to seven times per week, while 42% access it one to four times per week, which indicates a high level of commitment to using TWEN sites and keeping them current.[148] Many of the responding faculty were aware of most of TWEN's features.[149] The features with which most respondents were familiar were the capacity to post information on the home page (80%); email options (73%); Web links, live discussion, assignment drop box, and the ability to add "guest" participants in the course (61% each); and the ability to modify courses (57%).[150] There was less awareness of other features, such as online storage of documents and casebook-specific TWEN courses (26% each), and national TWEN courses (23%).[151]

There were disparities between the features of which faculty members were aware and those that they use more than once a semester. Sixty-one percent use TWEN's email options more than once a semester; 46% modify their courses more than once a semester; and 38% post materials on their TWEN sites more than once a semester.[152] No one is making use of the document quizzes feature, and few are making regular use of the calendar (3.8%); newslink (3.8%); online document storage (3.8%); casebook-specific TWEN courses (3.8%); and national TWEN courses (7.7%).[153] This implies that most faculty members are using only the most basic of the features that TWEN offers, e.g., posting material online, making use of TWEN's email options, and modifying their courses, even though they are somewhat familiar with the other features. *See* Figure B.

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147. *See id.*
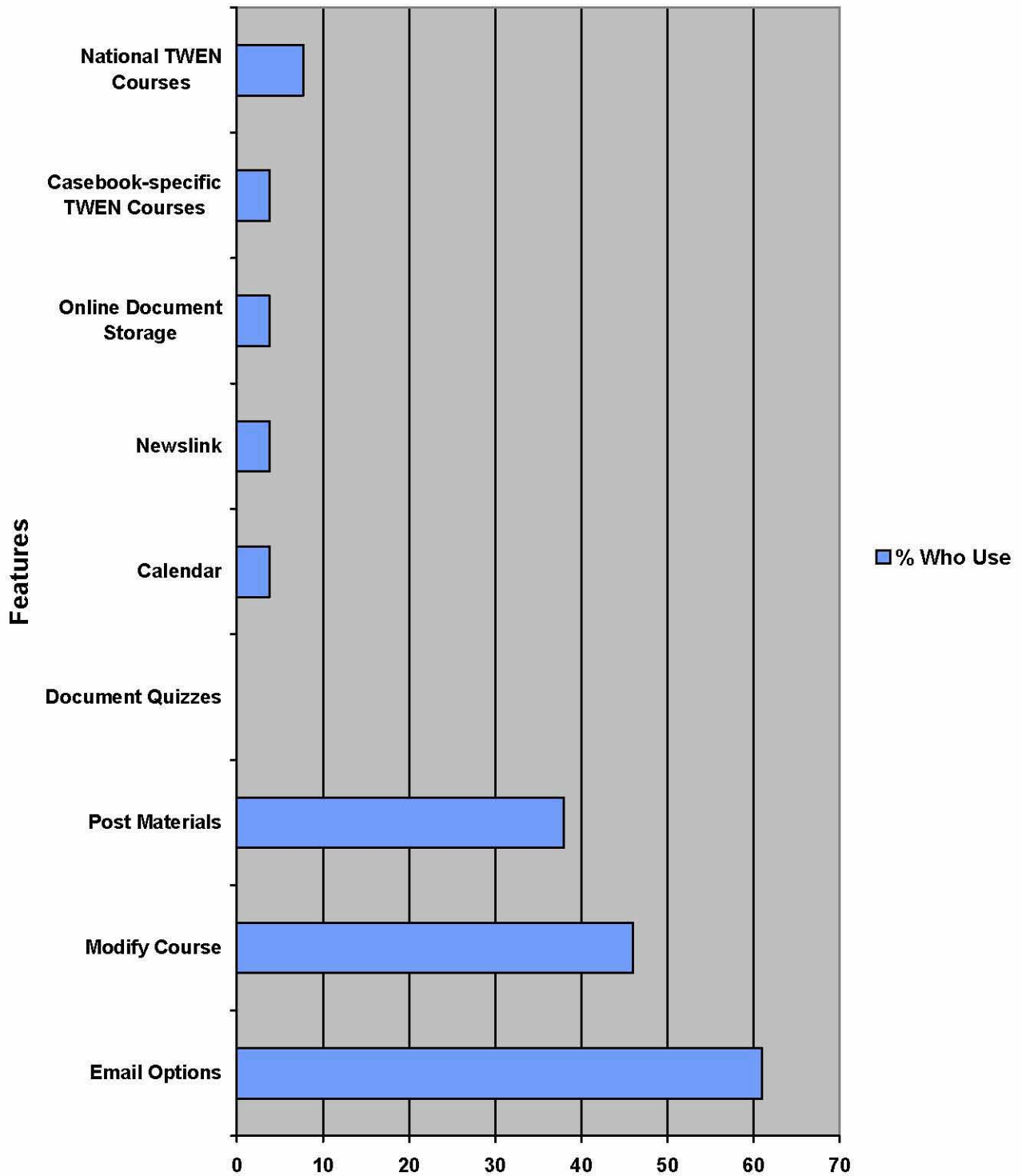148. *See* App. 2, question 4.
149. *See* App. 2, question 5.
150. *Id.*
151. *Id.*
152. *See* App. 2, question 6.
153. *Id.*

Figure B. Faculty Use of TWEN Features

Some survey respondents indicated that they would like TWEN to add additional features. Over one quarter (27%) favor one-click ability to download and organize all course materials,[154] citing students' difficulty managing printouts from TWEN. Fifteen percent would like TWEN to add smart testing, i.e., individualized, interactive testing, as a feature.[155] Eleven percent would like more sophisticated data preparation and reporting abilities and 7.7% requested more sophisticated statistical software.[156] Other enhancements mentioned were providing spell checking for email messages and discussion group postings, and making the assignment drop box anonymous.[157]

TWEN use appears not to be growing at Pace University School of Law. Of the nineteen respondents who use TWEN, fourteen (74%) said that their use of TWEN had remained the same in the last year.[158] Some of the reasons respondents mentioned for not increasing their use of TWEN include the lack of time to learn new features; TWEN's occasional slowness; no increase in the need for TWEN; the need for more TWEN training; and the perception that there is no reason to change a course that has recurring requirements.[159] Only three respondents (16%) said their use had increased significantly.[160] Those whose use of TWEN had increased significantly reported that they had just started teaching at Pace, or had added classes; one cited the ease of posting course materials as a reason for increasing his use. Two respondents (10.5%) said that their use had increased somewhat.[161] The respondents in this category cited the ease of posting syllabus revisions and new assignments, and mentioned the time TWEN saved on photocopying.[162] One respondent (5%) said his use had decreased

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154. *See* App. 2, question 7.

155. *Id.*

156. *Id.* One faculty member said that the restrictive statistical compilations from TWEN's score reporting are not sufficiently sophisticated. The scores can be downloaded to Excel, but this should not be necessary; it should be possible to do this within TWEN.

157. *Id.* This respondent pointed out that even if students use secret codes, the reports stay in alphabetical order, defeating anonymity.

158. *See* App. 2, question 8.

159. *Id.* It is not surprising that some faculty would like more TWEN training. Fifteen respondents (58%) said they had received no training, while only four (15%) had formal training, three had informal training with a member of the library staff (11%), and two took an online tutorial (7.6%). *See* App. 2, question 10.

160. *See* App. 2, question 10.

161. *Id.*

162. *See* App. 2, question 8.

somewhat because he doesn't find TWEN useful.[163] Another respondent (5%) said his use had decreased significantly because students resisted paperless course materials.[164]

The most telling portion of the survey dealt with the effect of TWEN on our students' learning and our faculty's teaching. Two thirds of TWEN users who responded to the survey and answered this question[165] felt that TWEN had not improved the quality of students' substantive learning, or had not improved it significantly (fifteen respondents or 62.5%).[166] Only four respondents (17%) felt that TWEN had improved the quality of student learning to a certain degree, and only one respondent (4%) felt that TWEN had improved the quality of learning very much.[167] No respondent felt that TWEN had greatly improved student learning, and four respondents (17%) had no opinion.[168] On the other hand, 56% (thirteen respondents) felt that TWEN had improved the quality of students' experience of learning, while 26% (six respondents) reported that TWEN had not improved the quality of students' experience of learning, or had not significantly improved it.[169]

Most respondents agreed that TWEN has not improved the quality of their substantive teaching; 61% (fourteen respondents) said that TWEN had either not improved the substance of their teaching at all, or had not significantly improved it.[170] Six (26%) stated that TWEN had improved the substance of their teaching to a certain degree, while three (13%) had no opinion on the question.[171] A higher percentage of respondents (ten respondents or 52%) felt that TWEN had improved their experience of teaching to a certain degree or very much.[172] The same percentage reported that TWEN use had not improved their experience of teaching at all, or had not significantly improved it.[173] Three respondents (13%) had no opinion.[174]

See Figure C.

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163. *Id.* Unfortunately, this respondent didn't give his reasons for this comment.

164. *Id.* This seems anomalous given that many of our students are coming out of undergraduate environments where use of course Web sites and electronic posting of course materials is widespread. *See supra* text accompanying note 69.

165. Of the forty respondents who completed the survey, only twenty-four responded to question 11, and twenty-three responded to questions 12-14.

166. *See* App. 2, question 11.

167. *Id.*

168. *Id.*

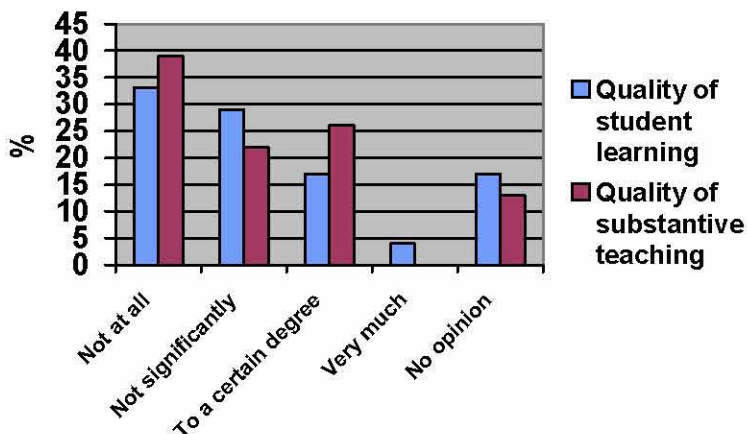169. *See* App. 2, question 12.

170. *See* App. 2, question 13.

171. *Id.*

172. *See* App. 2, question 14.

173. *Id.*

174. *Id.*

Figure C. Professor Views on Impact of TWEN on Teaching and Learning

Respondents said that TWEN eases communication with students, and that it is very convenient to have all course materials in one place.[175]   Overall, in the subjective, self-reported views of participating professors, TWEN seems to have had very little effect on learning at Pace, perhaps because course content has not changed due to TWEN; it has merely migrated to an online platform. TWEN has, however, improved and facilitated course administration and made it easier for faculty members to communicate with students. In these significant but limited ways, TWEN has been a success at Pace.

VI. Recommendations for Implementing Course Management Software at Law Schools

Pace University School of Law's experience with TWEN indicates that the following factors were critical to its successful

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175. *Id.* These advantages of TWEN are corroborated by Professor Jennifer Jolly-Ryan, who set up a course Web page to coordinate the legal writing program she administers. *See* Jennifer Jolly-Ryan, *Coordinating a Legal Writing Program with the Help of a Course Webpage: Help for Reluctant Leaders and the Technologically-Challenged Professor,* Quinnipiac L. Rev. 479, 485 (2004). Additional benefits of the course Web page in the legal writing context are greater consistency among the various sections as well as a positive message sent to students through the use of technology. *Id.* Students and professors belong to different generations. Students are "efficient information managers," while "most faculty members are neither efficient information managers, nor particularly technology-oriented." *Id.* at 491 (footnote omitted). The use of technology helps to bridge the generation gap. *Id.*

implementation at Pace Law School, and probably would be critical at most other law schools.

A. Identify the Requirements for the Software

It is important to pick a course management software program with the institution's needs in mind, and to identify the minimum requirements, both pedagogical and technological, that the program must meet before beginning the search.[176] At Pace, a course management software program had to be easy for both faculty and students to use; it had to be intuitive so that faculty, with proper training and support, would be able to post materials on their own. It had to support links to primary and secondary legal authority[177]; for this, a program designed specifically for legal education, as opposed to a generic product, seemed preferable. It had to allow posting of documents, such as syllabi and course assignments, that had been created in a word-processing program.[178] The program had to reside on a robust, reliable server, so there would be no risk of having data inaccessible or lost because of server failure. An important consideration was whether the program would support integrated electronic discussion groups, which a number of faculty had been using for several years.[179] The program had to be able to reflect the Law School's academic calendar, which does not correspond with Pace University's calendar.[180] Price was an important consideration in the search for a course management software program. Finally, the program had to have good user support, both initially and on an ongoing basis.

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176. *See* Susanna Fischer, *Choosing Appropriate Web Courseware for Your Law School Class*, (Apr. 2001) *at* http://jurist.law.pitt.edu/lessons/lesapr01.htm. The factors that Professor Fischer took into account when selecting courseware were the appearance of the Web pages, the reliability and speed of the server on which the course pages were hosted, cost of the software and whether licensing was required, the ability to use passwords to control access to the Web site, functionality (especially an online calendar, threaded discussion lists, and online syllabus), and ease of use by both professor and students. *Id.* Professor Fischer ultimately chose the LexisNexis product.

177. *See supra* text accompanying notes 121-22.

178. *See supra* text accompanying note 113.

179. *See supra* text accompanying notes 127-29.

180. Pace University School of Law and Pace University are on slightly different calendars. When we were using Blackboard, the default calendar was the University's, not the Law School's. This made for some degree of confusion on the part of our students.

B. Encourage Faculty Participation

One of the best choices made was to involve the faculty in the decision-making process. When informed that the Law School was considering TWEN, the Westlaw representative made arrangements for Professor Joel Friedman of Tulane University School of Law to make a presentation to the faculty on the use of TWEN. That presentation was a turning point in gaining acceptance for TWEN. Although the turnout was small,[181] those faculty members who attended were very impressed and spoke well of TWEN to colleagues who had not attended. Professor Friedman spoke from a law professor's point of view, and made TWEN seem intuitive and easy to use. It became clear that TWEN had been designed specifically for legal education,[182] which gave it a clear advantage over such generic products as Blackboard. In addition, the live TWEN demonstration was seamless, making the subtle but unmistakable point that the server was reliable.

One concern that several faculty members articulated during the decision-making process centered on the perception that by choosing TWEN, the Law School was implicitly designating Westlaw as its legal database of choice.[183] To be fair to TWEN, however, if the Law School had chosen the LexisNexis product, it might well have been accused of endorsing that vendor and its product line.[184] In the end, students should be urged to become experts on both systems because they do not know to which they will have access once they are in practice.

C. Mandate Institution-wide Use

Once the Law School chose TWEN, the Dean decided that all faculty members would use TWEN, and that all courses would have a

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181. Less than 20% of faculty members attended.

182. The ability to link from course Web sites to CALI lessons and to Westlaw was a powerful incentive to adopt TWEN.

183. The Law Library staff always goes to great lengths to avoid the appearance of favoring one system over another. In addition, I tell my Advanced Legal Research students that they should not graduate from law school without being fully competent in both LexisNexis and Westlaw; that message is somewhat undercut when one's own syllabus is laden with links to Westlaw resources.

184. This problem will not disappear unless law schools use generic products such as Blackboard or WebCT that do not offer the advantages of course software designed specifically for use by legal educators, or unless law schools forgo the use of commercial products altogether and create our own course management software programs. *See, e.g., supra* note 108.

TWEN course Web site.[185] Such standardization simplifies support,[186] and is also greatly appreciated by students, who know there is one place to go for syllabi and assignments.

Despite the Dean's mandate, there are greater and lesser degrees of TWEN use.[187] Some faculty members post only their syllabi and first assignments, and never make any further use of TWEN during the semester.[188] Some make full use of the threaded discussion lists, and require that students post to the lists for course credit.[189] One professor sets up an online discussion group for his courses and does not use the TWEN threaded discussion lists because "ListServ postings arrive as emails and most students . . . access their email client frequently. . . . TWEN requires affirmative accessing and this, in my experience, defeats much of the participation and spontaneity of an online discussion group."[190] Some faculty members use the drop box for assignments. The ability to link to relevant CALI assignments is a popular feature.[191] Some professors post their old exams on their TWEN sites.[192] For each of my Advanced Legal Research classes, I create a detailed outline that I post to TWEN before the class. Laptop users who want to take notes directly on the outline can go to TWEN and have the outline in front of them during the class.[193] Students who do not have computers can also follow along much more easily and take notes when they print out the unit outline.[194]

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185. The previous Dean had mandated across-the-board use of WebCourse in a Box, which was a useful precedent when the Law School adopted TWEN.

186. It would be more difficult to support multiple course software packages than one course software package.

187. *See supra* notes text accompanying notes 111-12, and Figure B.

188. *See generally* Geist, *supra* note 106, at 165, and *supra* note 141 and accompanying text.

189. *See supra* note 128 and accompanying text.

190. Email from Ralph Stein, Professor, Pace University School of Law, to the author (Dec. 18, 2003, 10:10 EST) (on file with author).

191. *See supra* text accompanying notes 116-20.

192. *See supra* text accompanying notes 124-26.

193. This has turned out to be an extremely popular feature of the course. Former students sometimes ask me to send them the outlines which I update every semester.

194. "[S]tudies of student notetaking reveal that even the best students record less than 90% of what their instructors believe is important and many students record as little as 9%. When Instructors provide ... skeletal notetaking outlines ... student notetaking greatly improves." Schwartz, *supra* note 101. For this reason, faculty members at Western State University College of Law upload their lecture notes to their course Web sites. *Id. See also* Austin, *supra* note 69, on the value of linked outlines.

D. Set up a Pilot Rollout

Once the Law School decided on TWEN, it was introduced gradually during a test run in the summer of 2002; TWEN sites were created for all the courses offered during the summer session. Although everything worked well, it was not a true test of the system because there were only a few courses and a small number of students. TWEN's true test would not come until the full rollout at the beginning of the fall semester. However, the pilot rollout gave us a chance to troubleshoot the system and make sure we were comfortable with it. It also gave us an opportunity to solicit student feedback, albeit from a limited number of students.

E. Schedule Full Academic-Year Implementation and Training

Before the fall semester began, the TWEN support team, headed by Jevne Kloeber, then the TWEN Faculty Program Manager, brought in a great deal of technical support.[195] Ms. Kloeber spent several days at Pace to assist with setting up TWEN sites for the full rollout.[196] The Westlaw academic representative offered group and individual training, and the faculty assistants received intensive training so that they could either build the sites themselves or support their professors while they built their own sites. Librarians also received training both so that they could support faculty, staff, and students, and so that they could build TWEN sites for law review support. Frankly, we have not invested the same amount of TWEN training in our adjunct faculty because many of them do not have long-term relationships with the Law School, and it is difficult to schedule training for adjuncts. The only exception is one adjunct who does have a long-term relationship, and requested training. As a result, only a few adjunct faculty members administer their own TWEN sites, and the faculty assistant who supports the adjunct faculty administers the vast majority of adjunct course Web sites. She finds the workload at the beginning of the semester to be somewhat challenging.[197]

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195. This was very important to me because by this point, I was the only member of the Technology Task Force, the group charged with responsibility for the course management software initiative, still working at Pace. The Library, along with the faculty assistants, has absorbed the lion's share of the responsibility for TWEN.

196. Unfortunately, few faculty members took advantage of the opportunity for training. As a result, some feel constrained in their use of TWEN because they do not know it as well as they would like. *See supra* note 159 and accompanying text.

197. Email from Judy Jaeger, Faculty Assistant, Pace University School of Law, to the author (Mar. 2, 2005, 3:54 EST) (on file with author).

Students are generally comfortable with TWEN after a somewhat rocky period in the fall of 2002 when they had to make the transition from Blackboard to TWEN; however, most professors had stopped using Blackboard months before and many students had had negative experiences with Blackboard, so their learning curve was rather short in most cases.[198] More than anything else, those students who had not attended the summer session were rather disconcerted to find that a new course management system had been introduced over the summer; the Law School should have done a better job of informing students of the impending change. Fortunately, the transition was made easier by the first-year students, many of whom had come from undergraduate environments where they had used course Web sites and electronic discussion groups; as a result, TWEN came naturally to them, and they required little training and support.[199] Although most of the first-year day students required minimal training, we did offer it during orientation and did so again during orientation in fall 2003 and fall 2004. Evening students are generally pleased; because many of them live a good distance from the Law School and most of them work, it is a convenience to be able to retrieve their assignments remotely and to be able to complete other course-related work online.

F. Provide Ongoing Support

To ensure successful implementation of course management software, training is essential. Because of the intensive training that took place when the Law School first chose TWEN and the training that takes place each fall during orientation, most of the Law School community has a degree of familiarity with TWEN's features that they would not have had otherwise. Nonetheless, I designated one of

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198. Our evening students, who are slightly older than our day students, required more training on TWEN. In general, their computer skills tend not be as strong. This is not surprising because some of them attended high school and/or college before the widespread presence of computers in classrooms, and not all of them have been required to use computers in their pre-law school careers. In fall 2003, 24 was the median age of entering full-time students at Pace Law School, while 29 was the median age of entering part-time students. In fall 2004, 25 was the median age of entering full-time students at Pace Law School, while 31 was the median age of entering part-time students. Our entering full-time students are slightly older than their peers at other law schools. Nationally, the median age of entering full-time law students in Fall 2003 was 23.1. Email from Dr. Robert Carr, Senior Statistician, Law School Admission Council, to the author (Jan. 10, 2005, 9:20 EST) (on file with author).

199. *See generally supra* text accompanying notes 42-43, 69.

the reference librarians[200] the TWEN support librarian. Students, faculty, and staff know that he is the person to contact if there is a problem with a Westlaw password or any other problem accessing or using TWEN. Because TWEN is user friendly, the number of questions he gets has gone down steadily over time—from about fifty questions a week when we first adopted TWEN, to about sixty-five questions a semester now.[201] If he cannot answer a question, he calls TWEN support.

G. Peer Pressure

Peer pressure can be of enormous assistance when trying to induce faculty to adopt and use course Web sites. As some faculty members make use of technology in the classroom at Pace, word spreads among the students, who recommend these faculty members and their courses to other students. In response, faculty members who have been somewhat slow to adopt technology are seeking out their more technologically-savvy colleagues for advice on setting up course Web sites and on using the Internet for instructional purposes. This trend will surely grow as time goes on.

H. Summary

Attention to all of the factors discussed above contributes to making course Web sites a success in the law school environment. In the case of Pace University School of Law, it was particularly important that two successive deans mandated institution-wide use of course management software. TWEN has also been successful because the course Web sites facilitate communication—students know that this is where they should look to get their first assignments and find out which textbooks they are using. This information was formerly scattered around the Law School, but now is centralized on TWEN and available from wherever the students happen to be.

Perhaps the most important reason any course management system is successful is because it is intuitive and accommodates itself to faculty members of varying levels of computer expertise and

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200. The reference librarian who supports TWEN is also the Law Library Webmaster, and has extremely strong computer skills.

201. Some of the questions are actually Westlaw password problems, while others have to do with problems setting up course Web sites or using TWEN's advanced features. Occasionally students have difficulties printing out materials from TWEN. The questions are rarely, if ever, research oriented.

interest—it bridges the digital divide between faculty at different stages of their careers. Some professors never become comfortable administering their course Web sites, and have their assistants post their materials.[202] One helpful feature of TWEN is that professors do not have to use all its features in order to have a fully functioning course; they can choose those features that work best for their style of teaching and for a particular course.[203] Another attractive feature of TWEN is the ability to customize the course Web sites through the "Modify Course" feature. A basic structure is provided through the basic TWEN template, but professors are free to modify it to some extent if that will suit their pedagogical needs. However, most faculty who are capable of adding attachments to email messages are generally capable of posting materials to and maintaining their course Web sites; those who do this seem to enjoy the degree of control over their courses that this gives them. The bottom line is that some faculty members are more willing to invest their time experimenting with course Web sites than are other members of the faculty. It is probably unrealistic to think that all faculty members will ever reach the same level of technical expertise.

As useful as TWEN is, it has several serious shortcomings. Its crude statistical software, which impedes a professor's ability to generate sophisticated reports, has generated complaints from faculty.[204] TWEN's reporting abilities are in general rather limited. The lack of smart testing is a weakness,[205] particularly for professors who would like to experiment with that feature. Finally, students routinely complain that it is hard to manage the printouts from TWEN Web sites; faculty have requested one-click ability to download and print all the course materials for a particular course.[206] It is reasonable to assume that use of TWEN at Pace would grow if these enhancements were offered.

VII. CONCLUSION

Use of course Web sites at Pace University School of Law has improved course administration and facilitated communication with our students. It has proved to be a great convenience for students

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202. *See supra* note 141 and accompanying text.
203. *See supra* text accompanying note 111.
204. *See supra* text accompanying notes 154-57.
205. *Id.*
206. *Id.*

who appreciate the ability to retrieve materials such as course syllabi and assignments online. It may have facilitated our transition toward greater use of electronic technology in the classroom. We have yet to carry out any empirical research to determine whether students in courses whose professors make extensive use of TWEN learn the material more effectively than students in courses whose professors do not. Given what we know about how students learn today, it is reasonable to surmise that as course Web sites proliferate and become an integral part of legal education, students will learn more effectively through the use of technology. However, this assumption must be tested by rigorous empirical assessment of TWEN and other course management programs. If research confirms that students learn more effectively in courses that employ course management software, law schools should parlay that finding into greater in-class use of computer-assisted learning.

APPENDIX 1

Name:_____

FACULTY SURVEY ON TWEN USAGE

1. Do you use TWEN?
- ❑ Yes, I use TWEN personally
- ❑ Neither I nor my faculty assistant uses TWEN.
- ❑ I personally do not use it but my faculty assistant uses it on my behalf.

2. If you do <u>not</u> use TWEN, please indicate the other ways in which you use computers in your professional endeavors (check as many as apply).
- ❑ Email that I send and receive myself
- ❑ Email that my faculty assistant sends or receives on my behalf
- ❑ Word processing that I do myself
- ❑ Word processing that my faculty assistant does on my behalf
- ❑ Data processing, preparation of spreadsheets and related statistical uses
- ❑ Internet authoring
- ❑ A personal website
- ❑ Legal research using Westlaw and/or Lexis
- ❑ Legal research other than via Westlaw or Lexis
- ❑ Non-legal research
- ❑ Search and store sound or media clips
- ❑ Prepare or display multimedia presentations
- ❑ Other _____

3. If you do use TWEN, please indicate the other ways in which you use computers in your professional endeavors (check as many as apply).
- ❑ Email that I send and receive myself
- ❑ Email that my faculty assistant sends or receives on my behalf
- ❑ Word processing that I do myself
- ❑ Word processing that my faculty assistant does on my behalf
- ❑ Data processing, preparation of spreadsheets and related statistical uses
- ❑ Internet authoring
- ❑ A personal website

❑   Legal research using Westlaw and/or Lexis
❑   Legal research other than via Westlaw or Lexis
❑   Non-legal research
❑   Search and store sound or media clips
❑   Prepare or display multimedia presentations
❑   Other _____

4. If you use TWEN, with respect to each course for which you use TWEN, how often do you use it?

❑   Daily
❑   5-7 times per week
❑   1-4 times per week
❑   1-2 times per month
❑   1-2 times per semester
❑   Other _____
For which course/s do you use TWEN the most?_____
For which course/s do you use TWEN the least?_____

5. Please check the box of each TWEN feature of which you are aware.

❑   Capacity to post information on home page
❑   Calendar
❑   Email Options
❑   Web Links
❑   CALI Lessons
❑   Newslink
❑   Live Discussion
❑   Assignment Drop Box
❑   Sign-up Sheets
❑   Document Quizzes
❑   Grade Book and Assignments
❑   Modify Course
❑   Participants and Usage
❑   Ability to create customized links
❑   Ability to track student usage of TWEN
❑   Ability to add "guest" participants in course
❑   Ability of other faculty members to access your course's TWEN page

- ❏ Archive inactive courses
- ❏ Online storage of documents
- ❏ National TWEN courses
- ❏ Casebook-specific TWEN courses

6. Please check the box of those TWEN features you use <u>more than once a semester</u>.

- ❏ Capacity to post information on home page
- ❏ Calendar
- ❏ Email Options
- ❏ Web Links
- ❏ CALI Lessons
- ❏ Newslink
- ❏ Live Discussion
- ❏ Assignment Drop Box
- ❏ Sign-up Sheets
- ❏ Document Quizzes
- ❏ Grade Book and Assignments
- ❏ Modify Course
- ❏ Participants and Usage
- ❏ Ability to create customized links
- ❏ Ability to track student usage of TWEN
- ❏ Ability to add "guest" participants in course
- ❏ Ability of other faculty members to access your course's TWEN page
- ❏ Archive inactive courses
- ❏ Online storage of documents
- ❏ Casebook-specific TWEN courses
- ❏ National TWEN courses

7. Are there features TWEN currently doesn't have that you would like it to include?

- ❏ One-click ability to download and organize all course materials
- ❏ More sophisticated data preparation and reporting
- ❏ More sophisticated statistical software
- ❏ Smart testing (individualized, interactive testing)
- ❏ Other_____

8. If you do use TWEN, how and why has your usage changed in the last year?

- ❑ Increased significantly because

  _____.

- ❑ Increased somewhat because

  _____.

- ❑ Remained the same because

  _____.

- ❑ Decreased somewhat
  because_____.

- ❑ Decreased significantly because

  _____.

9. If you do not use TWEN, please indicate the reason(s) you do not (check as many as apply).

- ❑ Technical difficulties with TWEN
- ❑ Student resistance
- ❑ Overall reluctance to use technology
- ❑ Reluctance to use TWEN in particular
- ❑ Why would I need to use TWEN?
- ❑ Use another course management software package or have another means of communicating with students

10. Did you receive any training on the use of TWEN?

- ❑ Yes, I took a formal training course.
- ❑ Yes, I did the online tutorial
- ❑ Yes, I had informal training with in-house staff
- ❑ No.

11. In your opinion, has TWEN improved the quality of students' <u>substantive learning</u> in your course?

- ❑ Not at all
- ❑ Not significantly
- ❑ To a certain degree
- ❑ Very much
- ❑ TWEN has greatly improved the students' learning in my course.
- ❑ No opinion

12. In your opinion, has TWEN improved the quality of students' <u>experience</u> of learning in your course?

- ❏ Not at all
- ❏ Not significantly
- ❏ To a certain degree
- ❏ Very much
- ❏ No opinion

13. In your opinion, has TWEN improved the quality of the <u>substance</u> of your teaching?

- ❏ Not at all
- ❏ Not significantly
- ❏ To a certain degree
- ❏ Very much
- ❏ No opinion

14. In your opinion, has TWEN improved your <u>experience</u> of teaching?

- ❏ Not at all
- ❏ Not significantly
- ❏ To a certain degree
- ❏ Very much
- ❏ No opinion

Thank You!

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APPENDIX 2
FACULTY SURVEY ON TWEN USAGE
26 Respondents

1. Do you use TWEN?

- ❑ Yes, I use TWEN personally. **19**
- ❑ Neither I nor my faculty assistant uses TWEN. **3**
- ❑ I personally do not use it but my faculty assistant uses it on my behalf. **4**

2. If you do <u>not</u> use TWEN, please indicate the other ways in which you use computers in your professional endeavors (check as many as apply).

- ❑ Email that I send and receive myself **7**
- ❑ Email that my faculty assistant sends or receives on my behalf **3**
- ❑ Word processing that I do myself **7**
- ❑ Word processing that my faculty assistant does on my behalf **4**
- ❑ Data processing, preparation of spreadsheets and related statistical uses **2**
- ❑ Internet authoring **2**
- ❑ A personal website **0**
- ❑ Legal research using Westlaw and/or Lexis **6**
- ❑ Legal research other than via Westlaw or Lexis **3**
- ❑ Non-legal research **3**
- ❑ Search and store sound or media clips **1**
- ❑ Prepare or display multimedia presentations **2**
- ❑ Other (Listserv discussion group) **1**

3. If you do use TWEN, please indicate the other ways in which you use computers in your professional endeavors (check as many as apply).

- ❑ Email that I send and receive myself **18**
- ❑ Email that my faculty assistant sends or receives on my behalf **5**
- ❑ Word processing that I do myself **16**
- ❑ Word processing that my faculty assistant does on my behalf **8**

❑   Data processing, preparation of spreadsheets and related statistical uses **6**

❑   Internet authoring **5**

❑   A personal website **3**

❑   Legal research using Westlaw and/or Lexis **17**

❑   Legal research other than via Westlaw or Lexis **13**

❑   Non-legal research **16**

❑   Search and store sound or media clips **3**

❑   Prepare or display multimedia presentations **7**

❑   Other (E-conferencing) **1**

4. If you use TWEN, with respect to each course for which you use TWEN, how often do you use it?

❑   Daily **0**

❑   5-7 times per week **4**

❑   1-4 times per week **8**

❑   1-2 times per month **4**

❑   1-2 times per semester **4**

❑   Other **4-5 times a month; link to my homepage; 3-4 times a semester**

For which course/s do you use TWEN the most? **Usage is consistent for all courses 4 (separate respondents). Others responded with the following specific courses: Seminars and upper-level courses; Elder Law; Criminal Law (3); Advanced Legal Research; International Law; Environmental Skills; Federal Income Tax**

For which course/s do you use TWEN the least? **Clinical courses 3**

5. Please check the box of each TWEN feature of which you are aware.

❑   Capacity to post information on home page **21**

❑   Calendar **11**

❑   Email Options **19**

❑   Web Links **16**

❑   CALI Lessons **11**

❑   Newslink **9**

❑   Live Discussion **16**

❑   Assignment Drop Box **16**

❑   Sign-up Sheets **10**

❑   Document Quizzes **10**
❑   Grade Book and Assignments **12**
❑   Modify Course **15**
❑   Participants and Usage **16**
❑   Ability to create customized links **11**
❑   Ability to track student usage of TWEN **11**
❑   Ability to add "guest" participants in course **16**
❑   Ability of other faculty members to access your course's TWEN page **14**
❑   Archive inactive courses **12**
❑   Online storage of documents 7
❑   National TWEN courses **6**
❑   Casebook-specific TWEN courses 7

6. Please check the box of those TWEN features you use <u>more than once a semester</u>.

❑   Capacity to post information on home page **10**
❑   Calendar **1**
❑   Email Options **16**
❑   Web Links **6**
❑   CALI Lessons **4**
❑   Newslink **1**
❑   Live Discussion 3
❑   Assignment Drop Box **5**
❑   Sign-up Sheets **3**
❑   Document Quizzes **0**
❑   Grade Book and Assignments **5**
❑   Modify Course **12**
❑   Participants and Usage **8**
❑   Ability to create customized links **2**
❑   Ability to track student usage of TWEN **4**
❑   Ability to add "guest" participants in course 7
❑   Ability of other faculty members to access your course's TWEN page **2**
❑   Archive inactive courses **4**
❑   Online storage of documents **1**
❑   Casebook-specific TWEN courses **1**
❑   National TWEN courses **2**

7. Are there features TWEN currently doesn't have that you would like it to include?

- ❏ One-click ability to download and organize all course materials **7**
- ❏ More sophisticated data preparation and reporting **3**
- ❏ More sophisticated statistical software **2**
- ❏ Smart testing (individualized, interactive testing) **4**
- ❏ Other ("**Add a spellchecking function to email messages and discussion group postings**"; "**make Assignment Drop Box anonymous—it stays in alphabetical order even if students use secret codes**")

8. If you do use TWEN, how and why has your usage changed in the last year? Increased significantly because **3** ("**I just started at Pace**"; it's "**very helpful to put up course materials**"; "**I've added classes and features**")

- ❏ Increased somewhat because **2** ("**It saves time on copying**"; it's "**used for new assignments and syllabus revisions**")
- ❏ Remained the same because **14** ("**No time to figure out new things**"; "**need hasn't increased**"; "**it's sometimes slow**"; "**I need training**"; "**course has recurring requirements**"; "**I hardly use it or need it**")
- ❏ Decreased somewhat because **1** ("**I don't find it useful**")
- ❏ Decreased significantly because **1** ("**Students resisted paperless course materials**")

9. If you do not use TWEN, please indicate the reason(s) you do not (check as many as apply).

- ❏ Technical difficulties with TWEN **2**
- ❏ Student resistance **1**
- ❏ Overall reluctance to use technology **2**
- ❏ Reluctance to use TWEN in particular **1**
- ❏ Why would I need to use TWEN? **2**
- ❏ Use another course management software package or have another means of communicating with students **2**

10. Did you receive any training on the use of TWEN?

- ❏ Yes, I took a formal training course. **4**
- ❏ Yes, I did the online tutorial. **2**
- ❏ Yes, I had informal training with in-house staff. **3**

❑ No. **15**

11. In your opinion, has TWEN improved the quality of students' <u>substantive learning</u> in your course?

❑ Not at all **8**
❑ Not significantly **7**
❑ To a certain degree **4**
❑ Very much **1**
❑ TWEN has greatly improved the students' learning in my course. **0**
❑ No opinion **4**

12. In your opinion, has TWEN improved the quality of students' <u>experience</u> of learning in your course?

❑ Not at all **4**
❑ Not significantly **2**
❑ To a certain degree **11**
❑ Very much **2**
❑ No opinion **4**

13. In your opinion, has TWEN improved the quality of the <u>substance</u> of your teaching?

❑ Not at all **9**
❑ Not significantly **5**
❑ To a certain degree **6**
❑ Very much **0**
❑ No opinion **3**

14. In your opinion, has TWEN improved your <u>experience</u> of teaching?

❑ Not at all **6**
❑ Not significantly **4**
❑ To a certain degree **8**
❑ Very much **2**
❑ No opinion **3**

Some comments in response to the last question: "TWEN eases communication with students, but often the system is down." "I like it and will continue to use it." "It is sometimes slow, but very convenient to have things in one place."

Thank You!

12/13/04