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For the past 120 years, legal education in the United States has been fundamentally unchanged, even while the practice of law has been revolutionized by information technology. The ideal of the Socratic Method is still dominant in first year and many upperclass courses. Clinical and practice courses have expanded since the early-1980s; however, although state-of-the-art technology is now commonplace in law offices, most federal courthouses, and some state courtrooms, until now, there has been little effort to contextualize the importance of technology for law students. The authors review the availability of courses covering use of technology in law practice at American law schools and set out their own proposal for such a course at Duke University School of Law.

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INTRODUCTION

We are now three years into the twenty-first century and there can be no doubt that information technology, and the Internet in particular, have profoundly changed American society. From the corporate boardroom to the classroom, computers and the Internet are pervasive. According to the Pew Internet and American Life Project, more than sixty-six million American adults have Internet access and fifty-two percent of them go online each day.1 College students are also heavy users of the Internet: eighty-six percent of today’s college students report having been online, compared to fifty-nine percent of the general population.2 While e-mail and instant messaging are popular uses of the Internet among college students for informal communication, seventy-nine percent of students agree that Internet use has had a positive impact on their college academic experience.3 Although the pedagogical value of Internet access in the classroom itself is a controversial issue, many colleges rely on the Internet to provide supplemental support to teaching. Two-thirds of college students reported subscribing to one or more academic-oriented

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3 Id. at 3.
mailing lists that relate to their studies and about half report they are required to use the Internet to contact fellow students in some of their classes.  

Although Internet access is a major component of computer use at colleges, it is not the sole use. Students continue to use word processing to prepare assignments and take exams, spreadsheets to analyze functions and equations, and electronic calendars to organize their busy schedules. From all of the above it should be clear that by the time they enter law school, most American students are well-versed in the use of computers and the Internet. 

In law schools themselves, as in undergraduate institutions, computers and the Internet play an important and growing role in and out of the classroom. While only a few law schools (seven of sixty responding) report requiring their students to own computers, many law school information technology (IT) staff members report that upwards of ninety percent of their students bring notebook computers to school. The administration of secure exams to law students is a market that supports four vendors, despite the fact that there are only 187 American Bar Association approved law schools that offer a first degree in law in the United States.

Notwithstanding the ubiquitous presence of computers and the Internet at most American law schools, little has been done to expose future attorneys to the role that information technology will play in their professional lives. Technology plays an important and growing role in today’s law firms, as well as in government agency counsel offices, corporate law departments, and the courts. Law firm IT directors have their own professional organization, LawNet, Inc., which reports hundreds of firm memberships, as well as other members such as the U.S. Department of Justice. The Administrative Office of the U.S. Courts has published a courtroom technology manual that establishes specifications and procedures for incorporating electronic technology into courtrooms. That body has contracted with a private company, DOAR, for the design of many federal courtrooms. Where does an information technology education fit in the law school curriculum?

I. A VERY BRIEF HISTORY OF LEGAL EDUCATION

While it is not our purpose to expound on the history of American legal education, a concise summary may be useful to the reader. There were legal lectures in undergraduate programs during colonial times, but the first school devoted strictly to the teaching of law was

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4 Id.
6 See, e.g., id. under topic “Comments;” Posting of Paul Morrison to teknoids@clamor.law.cornell.edu (Nov. 18, 2003) (copy on file with author).
8 The ABA Legal Technology Resource Center documents the incremental increases in the use of technology through annual surveys. See, e.g., AM. BAR ASS’N, 2002 LEGAL TECHNOLOGY SURVEY REPORT (2003).
11 Steve Sheppard, An Introductory History of Law in the Lecture Hall, in THE HISTORY
organized in Litchfield, Connecticut, in 1775. Formally, legal education at an American university first proceeded in fits and starts, with the first successful efforts at the College of William and Mary in Williamsburg, Virginia, and Transylvania University in Lexington, Kentucky. The classes consisted of monologue lectures, a method that was used into the mid-eighteenth century. While reading cases was part of the course work at some schools in the United States and England, the casebook and the study of cases as the primary method of learning the law did not come into its own until Christopher Columbus Langdell became Dean of Harvard Law School in 1870. Langdell had first used the case method in his first contracts class at Harvard in the fall of that year. In the ensuing years, the case method became the standard for law schools throughout the United States, and it remains so today.

The introduction of technology to the law school classroom began with motion pictures, then continued with the introduction of television, audiotapes, and videotape. With the creation of the Lexis database in 1970, electronic access to cases and other legal materials was possible. Twelve years later, a consortium of law schools founded the Center for Computer Assisted Legal Instruction (CALI), and in 1992 the first electronic casebook arrived — Ron Stoudt’s Folioworks casebook in computer law.

Classroom study for the most part was confined to principles of law, not its practice. Clinical programs began to address questions of practice and the development of accompanying skills. The modern era of legal clinics began in the early 1960s with the efforts of the National Council on Legal Clinics that used a Ford Foundation grant to give ten grants to law schools. Since then, clinics and the more recent phenomena of “skills practice courses” have been instituted at many schools.

The American Bar Association presumes that law schools will teach what needs to be taught to be a functional lawyer. Yet it is an often-held belief in legal education that technology will be integrated only reluctantly. As phrased recently in an ABA journal:

Of course, technology will eventually transform the way law is taught and learned, inasmuch as access to information, classroom demonstrations utilizing PowerPoint and

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12 Id. at 13.
13 Id. at 14.
14 Id. at 18.
15 Id. at 26.
16 Id. at 37.
17 Id. at 42.
18 Id. at 43.
20 The Standards for Approval of Law Schools of the American Bar Association are founded primarily on the fact that law schools are the gateway to the legal profession. They are minimum requirements designed, developed, and implemented for the purpose of advancing the basic goal of providing a sound program of legal education.
other technologies, and familiarity with the use of computers for trial work and office practice will all change the daily routine of law school professors. But leadership comes from practicing attorneys and from students who demand that new technologies support their efforts, not from legal educators. Technology will be important, but legal education will not be the engine driving these changes; it will be the caboose.  

We wish to contravene the assumption that law schools will have to be dragged into the 21st Century. Law schools may not need to be the engine of technology integration, but they have an obligation to the profession and to themselves not to be a caboose with its brakes set. We note that under current transportation rules, trains usually have no caboose — a cautionary extension of this image.  

II. DISCUSSION OF SURVEY

For our purposes, “technology in the practice of law” means the use of electronic technology in the customary practice of law, whether in or out of the courtroom. Perhaps the most visible use of practice technology to date has been in the courtroom, particularly in the presentation of evidence. We define technology in law practice more broadly, to include the following areas:

1. Use in the Courtroom  
   a. Presentation of evidence  
   b. Preparation for trial  
   c. Simulations and virtual representations
2. Use in the Office  
   a. Communication  
      i. Within the firm — e-mail, intranets, voicemail  
      ii. With clients and outside or opposing counsel — extranets, e-mail, voicemail  
   b. Time and Billing  
   c. Knowledge Management  
      i. Brief/memo banks  
      ii. Conflict checking  
      iii. Research  
      iv. Electronic discovery

In order to understand the extent of students’ exposure to the underlying technologies in these areas, we surveyed law school offerings in legal practice technology in the fall of 2003. We believed that the surveys would show that these technologies are not very widely treated. Our results, however, were encouraging on the whole, as we found a wider distribution of such courses than we had anticipated. At the same time, the results suggest that there is much more to be

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22 Changes in work rules and electronic equipment have made the caboose an obsolete notion; see Union Pacific’s explanation of its demise at http://www.uprr.com/aboutup/history/caboose/caboo02.shtml (last visited Dec. 28, 2003).
done before legal education treats legal practice technology as thoroughly as other aspects of legal practice.

With a goal of providing as comprehensive and accurate a picture as possible, we conducted two surveys with different methodologies. The first was a survey of interested parties, announced through a number of e-mail listservs used by the technologically oriented among law school faculty and staff. The second was a survey of course descriptions available through 188 law school Web sites. One survey was, thus, a collection of volunteered responses, representing the self-perception of the technologically interested component of the law school community. The other was an analysis of the self-representation of law schools to their internal and external constituencies, such as current and prospective students, hiring law firms and judges. There is, no doubt, a large “gray area” where legal practice technology is integrated into individual courses without that fact being part of either the self-perception or the self-representation of any particular law school. Nevertheless, we feel that it is only when the integration of technology is acknowledged that it will contribute to the evolution of law school curricula, and thus we feel justified in concentrating our research in this way.

The survey of law school personnel was aimed at positive results; in other words, we anticipated only hearing from those law schools where at least one course integrated technology. We received responses from thirty different law schools with such courses. In these schools, the following were the most common areas where technology was included (raw number in parentheses), and were substantially more numerous than the next most frequently cited responses:

- Legal practice management (20)
- Courtroom presentation (18)
- Standard office software (18)
- Information literacy (18)
- Litigation support (15)

We also inquired about what legal topics were treated in conjunction with technology; the most common of these were:

- Trial practice (15)
- Legal research (13)
- Law practice management (13)
- Clinical or other applied practice (10)

These distributions are not surprising to us — they establish that practice technology is primarily treated in practice skills courses — but we also found a few surprises overall. Before we consider these, it is useful to contrast the results of the Web site survey.

23 A Web-based survey form was announced on several e-mail lists on October 30, 2003: http://www.law.duke.edu/edtech/techncurriculum.html. The e-mail lists included: e-teach@chicagokent.kentlaw.edu; teknoids@clamor.law.cornell.edu; LAWPROF@chicagokent.kentlaw.edu. Other lists for law library and information technology directors were also used. The results, without personally identifiable information, can be found at: http://www.law.duke.edu/edtech/techncurriculum/surveyresults.html.

24 Web sites were surveyed from November 23, 2003 to December 7, 2003. The raw results of the survey, including any notes about the incompleteness of the data available through the Internet, can be viewed at: http://www.law.duke.edu/edtech/techncurriculum/lawschoolcoursedescriptions.html.
In the Web site survey, we concentrated on course types rather than technology areas or topics, in order to avoid the problem of subjectively interpreting what was typically a few words in a course description.25 Most courses fell into “conceptual buckets” that were fairly easy to identify among the range of possible legal subject matter. We found course descriptions that referred in some direct fashion to legal practice technology on 49 out of 187 Web sites. The three most common course types were:

- Law Practice (21)
- Trial Practice (16)
- Computers and the Law (16)

Law practice refers primarily to courses in practice management. Trial practice courses include any of a variety of courses that involve trial preparation and practice. “Computers and the law” courses come in several guises: among a much larger and broader set of courses titled “computers and the law,” “cyberlaw” and a number of other variants. These were courses that not only mentioned how technology was changing the role of law, but also changing how law is practiced.

The two surveys’ results bear a strong resemblance to each other. At the same time, there are some substantive differences, such as the “computers and the law” courses that do not have a clear parallel in the first survey. The most striking fact about these two surveys is that the schools with positive results overlap in only twelve cases. By totaling the two surveys together, we reach the mark of sixty-nine schools with at least one course with a practice technology component in their curriculum. This number is much higher than we anticipated going into our empirical work.26 The discrepancy between the two data sources initially led to some confusion. We had anticipated that those schools that were active in teaching legal practice technology would be represented through both the standard communications channels we employed in the e-mail listserv survey and through the schools’ Web sites.

Our frustration corresponds, we believe, to the difficult stage that we have reached in the legal education profession. The range of technologies has exploded — information sources and techniques are proliferating — but the standard means to keep track of and filter information have not kept pace. We believe that our surveys’ differences result from this substantial and growing gap in the management of information — that, quite simply, the left hand often does not know what the right hand is doing with technology. This discrepancy, in turn, helps prove our case: the management of information through technology is one of the most important skills in the legal profession today, and legal education must begin to reflect that reality.

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25 Note that legal research, analysis, and/or writing courses were excluded from the Web site survey. These courses inevitably include technology since legal research is now almost synonymous with database searching, and this aspect of legal practice technology is already so completely integrated into legal education that it bears mention only as an example of what can happen to integrate “practice” when the need is recognized.

26 It bears noting that a fair number of law schools are probably without representation in the e-mail listservs we used for the community survey and that there are a number of law schools whose curricula were not completely represented or easily searched on the Web. Both of these factors would skew our results downward. At the same time, we set the bar for the integration of practice technology very low; it is conceivable that if there were a curricular standard set by the ABA or some other organization, it would eliminate many of the “hits” in both surveys. Thus, these numbers are useful primarily for orienting us to the scope of the issue.
One final result bears mentioning. As stated above, we expected to receive positive results only from those law schools where a technology course was already being offered. However, in some instances we also heard from schools where such courses were proposed and/or under discussion and, in one private communication about the survey, we heard from someone who described having proposed a course in this vein, but whose course was rejected by the academic dean for being "too technology driven." We feel that this will eventually become a badge of honor, but in order for that change to occur, a different approach — more systematic and theoretically driven — must emerge.

III. TEACHING TECHNOLOGY IN THE PRACTICE OF LAW AT DUKE SCHOOL OF LAW: A PROPOSAL

Since the late-1980s, Duke Law has strived to be a national leader in bringing technology to the law school environment. It was a charter member of the Center for Computer Assisted Legal Instruction (CALI) in 1982. Duke Law established its student local area network in 1989; provided students and faculty with Internet e-mail accounts in 1991; created a computing services department in 1993; established its presence on the World Wide Web in 1995; instituted a student computer-ownership requirement in 1996; and created an educational technologies department in 2001. It has invested substantial resources in building an infrastructure that offers state-of-the-art technology throughout the law school and in attracting and retaining skilled staff to offer services that take advantage of that infrastructure.

Although author Hirsh had hoped to develop a course involving information technology for several years, he was unable to devote the necessary time for such a project. With the arrival of author Miller, and the establishment of the educational technologies department in 2001, the idea of establishing a course addressing students’ use of technology after leaving law school seemed achievable. With support from Senior Associate Dean Richard A. Danner, we presented a proposal entitled “Technology in the Practice of Law Initiative” in the fall of 2002. The text of that proposal follows:

As technology transforms legal practice, legal education has not kept pace. Curricula do not integrally reflect the ways in which information technologies are being used, and could be used, to change the practice of law in the United States. While law schools have embraced online publication databases like Lexis-Nexis and Westlaw, many other transformations in legal “best practices” remain outside the scope of today’s law school; large-scale document management; the discovery process in an electronic arena; information presentation and simulations in the courtroom; and the evaluation of electronic resources outside the narrow confines of the legal document databases.

IV. GOALS

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27 E-mail to Wayne Miller (Nov. 14, 2003) (on file with authors).
28 See the following Web page for descriptions of the technology available in the classrooms: http://www.law.duke.edu/edtech/tech.html.
30 Id.
Our initiative addresses the need for a certain level of technological competence as part of a lawyer’s skill set. We propose a number of steps in this integration process in order to ensure that changes to the curriculum provide the maximum impact and are carefully weighed against other needs. We foresee the following steps:

1. Introduce a series of workshops on issues relating to legal practice and information literacy.
2. Develop a conceptual map of content areas that may be part of another course or a new course in this field.
3. Develop competency goals for information technology that can be used by faculty “across the curriculum” to enrich the content of their course appropriately.
4. Develop a certificate program that will signify that the awardee has developed sufficient technological competence to think analytically about the different uses of information technology in legal practice.

Our initial goal was to plan a series of workshops for spring 2003, which will serve as a springboard for further development. The series titled “Technology in the Practice of Law” was organized into five or six sessions, beginning in late January and lasting to early April.

Possible Topics
1. The wired legal office
   a. Document management
   b. Customer management
   c. Electronic forms of interaction (videoconferencing, NetMeeting)
   d. Portable equipment
2. Electronic filing
3. Large case management
   a. Document management
   b. Electronic discovery
   c. Data mining
4. Trial practice
   a. Document management
   b. Document presentation
   c. Simulations
   d. Courtrooms in the real world and in the future
5. Technology and professional responsibility
   a. Reliability and authenticity of digital evidence
   b. Security of electronic communications
6. Legal information literacy

With the financial support of Dean Katharine Bartlett, we launched a lunchtime workshop series the following spring. The inaugural presentation was given by David Whelan, director of the technology resource center of the American Bar Association, who spoke generally about the use of technology in large law firms. Subsequent sessions were given by a large firm chief information officer and by an accountant in a legal practice management group on topics including
electronic communication with clients and extranets.31

Student attendance at the lectures was lower than we had hoped, which we have attributed in part to competition for students' limited free time from other lunchtime events32 and in part to the lack of a set agenda. We believe that a full course on technology, with a specific plan of study and credit for participation, would provide a much more compelling and comprehensible rationale for participation.

Duke Law would not be the first law school to offer a more comprehensive course or program in this area. See, for example, Columbia Law School's “Lawyering in the Digital Age” clinic33 and William and Mary Law School's collaborative project with the National Center for State Courts, “Courtroom 21.”34 However, we believe our initiative is fairly unique in the scope of its charge and in the proposition that a background in technologies is both a theoretical and a practical requirement for legal education. There is both a “hands-on” clinical need to be familiar with the technologies as they exist and also a theoretical need to understand the ways in which technology is affecting the practice of law in all its incarnations.35

There is an understandable bias against integrating too much practical information into legal education. This is often seen as the difference between learning to think like a lawyer and learning the skills of practicing law, where the former is seen as the more fundamental activity because it is common to all legal careers but where the latter (the skills of litigation) for example, may be useless to a tax lawyer.36 However, technology must be understood as a mid-level change to the legal profession. No one technological innovation changes what it means to “think like a lawyer,” but the information technology revolution is fundamentally changing how information moves in legal processes. Without a basic understanding of that fundamental shift, a new lawyer

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31 All of these presentations can be viewed via on-demand Web cast at the following URL: http://www.law.duke.edu/edtech/techincurriculum/lecturespr03.html (last visited Dec. 28, 2003).
32 At Duke Law, student-oriented events (and no classes) are held during the lunch hour in order to ensure that all students are able to attend an event of their choice.
35 We also see our effort as fundamentally different from, if also allied with, the necessary work to reevaluate teaching methodologies in law schools in light of education theory and technological change. See 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 (2002).
36 Thinking like a lawyer means, to a large extent, thinking rhetorically within a problem-solving context. But what are the skills involved in thinking like a lawyer? Most theorists who have addressed this question have drawn a distinction between practical and analytical skills. Practical skills include legal research, oral and written communication, counseling, negotiating, planning, and interviewing. Analytical skills involve fact analysis, case analysis and synthesis, statutory analysis, argumentation, and critical evaluation of legal and ethical issues. Because analytical skills are generally thought to be more closely tied to the lawyer’s cognitive processes, they are more frequently viewed as the components of thinking like a lawyer.

will be increasingly unable to understand how information flows in legal processes.37

Our proposed course would offer one semester-long course that would contain both a broad overview of the topic to provide a more theoretical view of the changes wrought by technology, and also the opportunity for the student to concentrate on a particular aspect of technology use in legal practice today.

V. BASIC PROPOSAL FOR A COURSE: TECHNOLOGY IN THE PRACTICE OF LAW

This course would serve the two-fold function of providing an overview of the role of technology in the practice of law through lectures by law school instructors and guest speakers, and of giving students hands-on experience with computer software and other technologies found in firms and courtrooms. The course would be a two-credit course, credit/fail. It would meet twice a week during the spring semester. Course materials would be developed by the instructors and would include articles from appropriate publications (such as Law Office Computing, Legal Technology News), white papers, product manuals, and text written by the instructors. Students would choose an area of interest and would be required to participate in hands-on practice related to that area, to include, for example, electronic communication, knowledge management systems, client timekeeping and billing, courtroom presentation. Additionally, students would be required to give a thirty-minute presentation and turn in a final paper summarizing their experience in their area of interest.

Draft Syllabus

Week 1 — Introduction
An overview of technology in law practice: historical development, current uses of technology.

Week 2 — Office Practice; Administrative Tools
Timekeeping and billing systems, client and conflicts management, electronic filing.

Week 3 — Large Case Management
Document management, including data-mining, electronic discovery, indexing and retrieval of information.

Week 4 — Knowledge Management
Systems for organizing and sustaining the intellectual capital of a law practice: indexing and retrieving information contained in brief banks, memos, e-mails, and other firm internal documents.

Week 5 — Client Communications
Effective use of e-mail, Web sites, and other electronic communications. Professional responsibility perspectives of conducting the business of the legal profession with e-mail. Consideration of security and privacy issues.

Week 6 — Trial Practice

37 These changes will inevitably have real-world consequences, raising questions of competence, negligence, and relevance. “Even though computers will not replace lawyers, an attorney who uses a computer may replace one who doesn’t.” MICHAEL R. ARKFIELD, THE DIGITAL PRACTICE OF LAW 23 (5th ed. 2001).
Week 7 — The Internet Beyond Legal Research
The place of the Internet in today’s law office: practical tools and tips for applying the Internet to solving your client’s problems.

Week 8 — Information Literacy
Criteria for evaluating information sources of all kinds, from electronic databases purporting to be the equivalent of paper sources, to interpreting search results from electronic discovery.

Weeks 9–13 — Student Presentations

VI. CONCLUSION

While our initiative is still in its early stages, we have shared our work and research to date in the conviction that it is time for a more vigorous discussion in the law school community of how practice technology fits in the curriculum. While there has been great stability in legal education, there have also been profound changes, such as the introduction of clinical and practical skills courses, and the integration of electronic resources into legal research. The ways in which technology will change the practice of law are as fundamental as any the profession has faced, and cannot be assumed away from the curriculum as matters for nonlawyers and technology specialists. Thinking like a lawyer is no longer enough; a lawyer must also think like an information handler in an information age.