

An Autobiography of a Digital Idea: From Waging War against Laptops to Engaging Students with Laptops

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Introduction

What are *your* students doing on the other side of their laptops as they peer over their screens during class? Perhaps you are frustrated because you know what they are doing; they are checking e-mail, Twittering, and IM-ing their friends. If you feel as if you are losing your students' attention to the lure of the laptop,¹ you are not alone. Many law professors feel as if they are fighting a battle against the students' laptops in the classroom.² Some professors have turned off the wireless routers in their classrooms while others forbid the use of computers altogether.³ Most professors continue to lecture using the Socratic Method⁴ though many students no longer are paying attention.⁵ As a

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1. See Marilyn W. Walter, Retaking Control Over Teaching Research, 43 J. Legal Educ. 569, 569 (1993) (students "believe computers can do everything books can do only better and faster").
2. Compare David Cole, Laptops vs. Learning, Geo. L. Res Ipsa Loquitur 56 (2007) with Diana R. Donahoe, Laptops for Learning, Geo. L. Res Ipsa Loquitur 57 (2007). Previously, in 2001, Ian Ayers wrote an op-ed article in The New York Times arguing against the use of laptops in the classroom, claiming they were simply distractions in the classroom. Ian Ayers, Lectures vs. Laptops, N.Y. Times, Mar. 20, 2001.
3. See Paul L. Caron & Rafael Gely, Taking Back the Law School Classroom: Using Technology to Foster Active Student Learning, 54 J. Legal Educ. 551, 556 (2004) (describing professors at the University of Texas and Georgetown University Law Center who have forbidden laptop and wireless devices in the classroom). In some schools, the wireless router is off by default and professors must choose to turn it on to access the Internet in class.
4. See *id.* at 554 (describing the inadequacies of the Socratic Method). According to Caron and Gely, the theory behind the Socratic Method is that students who are not called on to speak still will follow the dialogue, answering the questions to themselves while the student in the hot seat is asked to answer out loud. *Id.* at 555.
5. Scott Carlson, The Net Generation in the Classroom, 52 Chronicle of Higher Educ. 7 (2005).

result, both students and professors are often frustrated with their classroom experiences.⁶ Professors label their frustration as a war against the laptops, whereas students consider it a battle against boredom.

Because our students today do not think or learn the way we did when we were students,⁷ it makes no sense to continue to teach them using the same outdated techniques. Instead, we must modify our pedagogy to meet their changing needs. However, deciding what to change in teaching is never easy. Instead of fighting technological advances and student preferences, I believe that law professors should learn to bridle the energy and usefulness of the laptop and engage students in the classroom at the students' technological level.⁸ By expanding our teaching methods to adapt to students' learning methods, law professors can help students become much more engaged in the material, resulting in a more active, exciting, and enriching classroom experience, both for the professor and the student.

This is an autobiographical account of my attempt to bridge the digital divide to meet students' changing needs. When I first began teaching at Georgetown University Law Center in 1993, I employed many traditional teaching techniques and used printed textbooks. However, laptops soon began peppering my classroom; at first there were only a few, and then suddenly almost every student was hiding behind a laptop. I noticed that my students were looking down at their screens, typing furiously, instead of watching me while I discussed my material written on the blackboard or projected overhead. When I realized that I was teaching to eyebrows instead of engaging my students eye-to-eye, I concluded that the traditional teaching methods were no longer effective. In 1999, I decided to research the mindset of these new learners, to overhaul my teaching methods and ultimately to create an interactive, electronic book that could sit conveniently on those laptops in the classroom.

The electronic book (which took more than eight years to design, write, build, and test) has transformed the ways in which I teach my students—both in and out of the classroom. It has allowed me to engage students so that they can reach a high level of understanding of the material, retain the information and enjoy the class as well. In this article, I describe the history and pedagogy that motivated me to write an interactive, electronic book; explain the thinking and learning process of the digital student; detail using the electronic book both in

6. *See id.*

7. Thomas Keefe, Teaching Taxonomies, 14 *Perspectives* 153, 156 (2006) ("Our students have been raised entirely on computers. We must recognize this reality and adjust our teaching to account for it.").

8. Some professors might argue that this sort of change in pedagogy would be "giving in" to the students' demands and would not lend itself to a high level of learning. *See* Caron & Gely, *supra* note 3, at 556 (describing critics of technology in the classroom). However, if we want to reach our audience (as we teach them to reach their audience as lawyers), we cannot ignore our audience's methods of thinking, learning, and receiving information. By taking advantage of their learning techniques, we can teach at an even higher level.

and out of the classroom; provide the strengths and weaknesses of using this non-traditional book with digital students; and propose other technological tools and pedagogies for the future.

I. The History and Pedagogy Behind Creating an Interactive, Electronic Text Book

As a law student in the 1980s at Georgetown Law Center, I was taught primarily by professors using the Socratic Method. Professor William Greenhalgh, for example, required me to stand on my feet for forty-five minutes while he grilled me with questions regarding footnotes and facts about the petitioner, Blackie Toy, in the Fourth Amendment case, *Wong Sun v. United States*.⁹ In fact, his classroom resembled the fictional class in *The Paper Chase*, the 1973 movie depicting the grueling life of law students at Harvard Law School.¹⁰ This teaching technique originated in the 1870s when Christopher Langdell, the dean of Harvard Law School, embraced the case method and began using judicial opinions as the starting point for analyzing and critiquing legal principles. Langdell thought this method would allow the law to be analyzed and critiqued by academics, thus advancing the profession's expertise and the law itself.¹¹

Langdell's case method and the Socratic teaching style have now been used for more than 100 years in law schools. While most professors today do not require students to stand when speaking, they still focus their classes on the case method where the professor asks questions of students about particular cases and stimulates students to criticize the current status of the law. The teacher controls the class through lecture and question-and-answer sessions. Many students find the technique to be stressful but not very engaging.

When I began teaching at Georgetown in the 1990s, I employed many traditional teaching techniques but decided I would not rely solely on the Socratic Method in my classes. I tried to find ways to engage the students by utilizing the social constructivist method of teaching where I told the students they were associates in my law firm working on a client's problems. Therefore, instead of focusing on the case method of teaching, I focused on problem solving. The students used the cases to solve the problem, not to critique or advance the law.¹²

While the social constructivist method was helpful, it did not totally engage the students in the classroom. Therefore, I experimented with other available

9. 371 U.S. 471 (1963).

10. *The Paper Chase* (Twentieth Century-Fox 1973). This law school depiction was further illustrated in Scott Turow's book, *One L* (Grand Central 1997) (originally published in 1977), often read by students the summer before entering law school.

11. William M. Sullivan, Anne Colby, Judith Welch Wegner, Lloyd Bond & Lee S. Shulman, *Educating Lawyers: Preparation for the Profession of Law* (Jossey-Bass 2007).

12. At times, we still critiqued the law, as the end result under the law was not always logical or moral.

tools. At the time, PowerPoint was the new, exciting technology. However, when I used PowerPoint, I found that my students actually became less engaged in class as they sat back and passively watched a slide show instead of sitting up and becoming engrossed in the materials. While my slides might have helped the visual learners in the class and lifted some eyes off their laptops, they did nothing to engage the digital learner.¹³ At this point I realized I was using technological devices ineffectively as “bells and whistles”¹⁴ instead of creating an environment to keep students engaged and improve their understanding of the materials. Therefore, I began researching the ways in which digital students think so that I could use the new technology effectively to better reach them in the classroom.¹⁵

III. The Digital Law Student

In my research and experimentation, I found that digital-age students think and learn much differently from previous generations. First, they learn best from three-dimensional, discovery-based learning. Second, they can multitask and telescope, gathering information quickly from a variety of sources. Third, digital students need to be “powered up” to learn. In addition, they benefit from peer review and interaction in a collaborative environment—more so than other generations. Finally, they crave immediate feedback and demand convenience.

A. Three-Dimensional, Discovery-Based Learning

First, while most professors think in linear fashion, moving from broad category to narrower categories usually in a page-by-page textual format, digital students think more three-dimensionally, moving from one screen to the next on the computer without regard for context.¹⁶ While a traditional learner (such as a professor) might need to enter a text at the beginning, a digital learner can enter at any location and exit at any time. Hyperlinks make this

13. Other professors have come to the same conclusions. See Alison Sulentic, PowerPoint and the Power Nap: Adventures in PowerPoint, Gonz. Univ./Inst. For Law Sch. Teaching (Spokane, Wash. 1999); Douglas L. Leslie, How Not to Teach Contracts and any Other Course: PowerPoint, Laptops, and the Case File Method, 44 St. Louis U. L.J. 1289, 1304-1306 (2000); see also Joel Forman, Next-Generation Educational Technology versus the Lecture, Educause 12 (2003) (PowerPoint slides are weak in relation to the visual standards set by professional image makers in the television, film, video-gaming, and advertising industries).

14. Caron & Gely, *supra* note 3, at 551.

15. Diana R. Donahoe, Teachinglaw.com, Bridging the Digital Divide, 5 Va. J.L. & Tech. 13 (2000). In this article, I compared the differences between the ways in which most law school professors think with the ways in which most of our students think. I also suggested ways for professors to bridge the digital divide to reach their students in the classroom, including the need for professors to write interactive, multimedia casebooks to use in their classes.

16. *Id.*

random access¹⁷ possible and digital students are constantly “surfing the web” to discover information.¹⁸ As a result, digital students are not passive, waiting for the author’s next sequential move. Instead, students are the “drivers” of the information-gathering process, navigating their way through multiple layers of text on the screen.¹⁹ The students like to be in control of “what, when, and how they learn.”²⁰ “They ‘accept as their right’ the ability to make choices and to customize the things they choose.”²¹ They think of learning as a process of discovery.²²

B. Multitasking and Telescoping

Second, digital students research by multitasking²³ and “telescoping.”²⁴ In multi-tasking, a student performs many acts at one time such as reading e-mail, taking notes during lecture, playing poker, and listening to music.²⁵ In telescoping, a student delves deeper and deeper into multiple screens and varied content seamlessly.²⁶ These students can probe deeper and deeper into content nestled within other content (in this context, screens nestled within other screens) while maintaining an understanding of the relationship between the screens. To professors, all these screens and layers might seem chaotic. But “telescoping is all about order, not chaos; it’s about constructing the proper hierarchy of tasks and moving through the tasks in the correct sequence. It’s about perceiving relationships and determining priorities.”²⁷ Digital students are facile at it. Their ability to move in and out, with multiple screens open (while listening to their iPods and IM-ing each other), is a testimony to their capacity to learn from multiple sources all at the same time.

17. M. Ethan Katsh, *Law in a Digital World* 166 (Oxford Univ. Press 1995). For more information on hyperlinks see David R. Johnson, *Building and Using Hypertext Systems*, 17 *Law Prac. Mgmt.* 28, 29 (1991).
18. Theodor Nelson, who coined the term, defined “hypertext” as “non-sequential writing-text that branches and allows choices to the reader.” Katsh, *supra* note 17, at 166.
19. Carlson, *supra* note 5, at 7.
20. *Id.*
21. *Id.*
22. Donahoe, *supra* note 15.
23. Angela Provitera McGlynn, *Teaching Millenials, Our Newest Cultural Cohort*, 71 *The Educ. Digest* 4, 15 (2005) (“Multitasking is a way of life for this generation.”); Carlson, *supra* note 19.
24. Steven Johanson, *Everything Bad Is Good For You—How Today’s Popular Culture Is Actually Making Us Smarter* 54 (Riverhead 2005).
25. McGlynn, *supra* note 23 (“These students believe they can learn complex information while listening to music or engaging in other activities.”).
26. Johanson, *supra* note 24.
27. *Id.* at 55.

C. "Powering Up" in the Classroom

Not only are students used to multitasking and telescoping, most of them spend time playing video games, IM-ing, emailing, and blogging. As a result, digital age students are used to being "powered up."²⁸ Most students now bring laptops to the classroom and the computer screen is a natural environment for them to learn, be engaged and gather information.²⁹ However, powering up does not mean merely turning on the computer to stare at a screen, tap on a keyboard and move a mouse. Taking notes and watching PowerPoint slides are passive activities that do not engage these students.³⁰ Text alone often bores digital students.³¹ Multimedia, such as computer graphics, video and animation, will help engage digital students by bringing material to life and helping them understand the context and relevance of the material to the "real world." However, students need even more. They need their learning to be three-dimensional—not flat, linear or purely textual. They need interactivity where their minds (and screens) are turned on and working in overdrive. They need to become a part of the material through collaboration, interactivity, and simulation.³² However, when they walk into a large lecture hall in law school, digital students tend to power down.³³ "Take a look at people walking into a classroom. They act like passengers boarding an airplane. They have revved down their own intellect. They are in passive mode."³⁴ Without interactivity,³⁵ students feel as if they have to "power down"³⁶ or worse, like the "airplane mode" on their cell phones, they turn off their functioning for learning.

D. Collaboration, Peer Review, and Interaction

Digital students also crave peer review and interaction. Collaboration is at the heart of learning for them.³⁷ Learning is a social phenomenon as well as a cognitive process.³⁸ By bouncing ideas off of each other, students can

28. Marc Prensky, *Engage Me or Enrage Me*, *Educause* 60, 64 (2005).

29. See Robert C. Berring, *Thoughts on the Future: A Steroid-Enhanced Editorial*, 15 *Legal Reference Services Q.* 1, 2 (1996) (referring to the keyboard and screen as more natural to these students than an index).

30. See Sulentic, *supra* note 13; Leslie, *supra* note 13; see also Forman, *supra* note 13.

31. See Carlson, *supra* note 5.

32. For more information on simulations, see Clark Aldrich, *Simulations and the Future of Learning: An Innovative (and Perhaps Revolutionary) Approach to E-Learning* (Pfeiffer 2004).

33. *Id.*

34. *Id.*

35. Donahoe, *supra* note 15.

36. Prensky, *supra* note 28.

37. Carlson, *supra* note 5; McGlynn, *supra* note 23.

38. See John Seely Brown, *Growing Up Digital: How the Web Changes Work, Education, and the Ways People Learn*, *Change* 11, 14 (2000), www.aahe.org/change/.

formulate their own opinions and drive the discussion themselves. They enjoy learning through discovery and discussion.³⁹ Their collaboration can either be in class, in person or virtual.⁴⁰ As a result, the professor no longer needs to be the sole and center point of learning; instead students have many resources from which to choose. Digital students often set up blogs for specific issues. They also e-mail and IM each other often (usually in the middle of class).

E. Immediate Feedback

Digital students demand immediate feedback. Video games are especially adept at providing this because players can see the result of their actions immediately.⁴¹ As an activity progresses, digital students also benefit from interactive materials that provide continuing feedback. Quizzes, self-assessments and tutorials are useful tools for these students because they immediately receive an answer, a score, or a response of some sort. Feedback need not come directly from a professor. It can come from online resources, peers, and blogs, and other online tools.

F. Convenience

Digital students demand convenience. They are so accustomed to getting their information instantly at the touch of the keyboard that they become frustrated easily by wasting time looking for materials, relying on books in distant libraries, or even scrolling for too long on a computer screen. On-demand cable, TIVO, the twenty-four-hour availability of the Internet and the ability to use cell phones to communicate at any time or location has made these students an instant-information generation.

In sum, I have found that digital students, like students of all generations, need to be engaged to learn.⁴² However, unlike other generations of learners, digital students become engaged by using computers as vehicles for three-dimensional, discovery-based learning. They learn from multitasking and telescoping, powering up in the classroom, engaging in peer review and collaboration, and receiving immediate feedback—all in a convenient environment that stimulates active learning. “Active learning facilitates long-term memory”⁴³ and allows students to develop their own creativity and thought process. As a result, students feel as if they have more control over

39. *See id.*

40. *See* Carlson, *supra* note 5.

41. For more on video game learning, see Marc Prensky, *Digital Game-Based Learning* (McGraw Hill 2000); *see also* Marc Prensky, *Don't Bother Me Mom, I'm Learning* (Paragon House 2006).

42. McGlynn, *supra* note 23.

43. *See id.*; for more on “active, critical learning theory” see James Paul Gee, *What Video Games Have to Teach Us about Learning and Literacy* (Palgrave Macmillan 2003).

their learning and can guide it in a way that suits their needs. I, therefore, sought to create a convenient and efficient resource to engage these students in and out of the classroom.

IV. The Interactive, Engaging, Online Book

The interactive, engaging online book, TeachingLaw.com,⁴⁴ incorporates the learning theory I had researched into a practical, pedagogically sound, fully integrated, technological tool for digital students.⁴⁵ I designed it to combine non-linear text, interactivity, immediate feedback, and multimedia into a convenient digital package to try to bridge the digital divide and meet my students on their side of the laptops.

A. Non Linear Text

First, I recognized the need for some text so students could read materials; I realized, however, that the resource would need much more than traditional text. I, therefore, decided the text would not be linear. Instead, students could enter the text in any location that suited them at that time. Instead of chapters, I created “rooms” for exit and entrance at will. I wanted professors to be able to easily assign readings from any room so that students would not feel as if they were “skipping” parts of the text. As an alternative, I wanted students to be able to “surf” the book, through a random clicking process, a search function,

44. Diana R. Donahoe, TeachingLaw.com (Aspen 2006), located at www.teachinglaw.com.

45. I spent more than six years designing, writing and building TeachingLaw.com. I then tested it for two years in the classroom at Georgetown University Law Center, and, in 2006, it was updated, published and tested again by Aspen Publishers. The current version (version 3.0) is now used at Georgetown and at approximately twenty other schools nationwide and internationally and has become a new platform for digital teaching. In addition to my book, Aspen has added Amy Sloan’s Basic Legal Research (4th ed. 2009) to the platform. Some professors have used the courseware package for their doctrinal courses as well.

or the navigation system. Below is a screen shot of the home page, displaying the seven main “rooms” to enter: Research Sources, Research Strategies, Legal Documents, Legal Analysis, Writing & Rewriting, Edit & Cite, and Case Files.



Figure 1. Home Page Showing “Rooms” for Text

Second, I decided that navigation would be important so students would not get lost in this three-dimensional environment. Navigation bars with multiple trees and layers were a necessity. At first, my navigation bar only extended one level; my students requested that the navigation branch out as far as possible. Because students can digest so many levels at once, these branches make it easy for them to telescope within the electronic book without getting lost. So, I added three methods of navigation—a top bar with branches for the whole site, a more detailed side bar for each room, and a site map to

serve as a linear table of contents for the whole e-book. Below is an example of the side navigation window opened; the top, drop-down branching navigation bar also is visible.



Figure 2. Navigation

Third, I knew that students would want to link to other relevant sources to add to the dimension of the content and to allow for further telescoping. Therefore, I set out to link to as many resources as possible. The key was not just adding a multitude of links. These needed to be organized in a logical way and be accessible at any time. I not only linked to Westlaw, Lexis, and other sources as often as possible in the e-book, but I also explained why and how students could access these links on their own. To employ students' abilities to multitask and telescope, I created an environment where they were not just reading about a research source but also were tapping into it at the same time. Screens nestled within screens allowed for text that included content as well as links to maps, which were linked to jurisdictions, which were linked to specific

research sources and sites, and so on and so on. Below is a screen shot of a map that lets students search federal courts, by each circuit or by district courts, by telescoping from a map of the United States to the specific circuit and then to a particular district court.

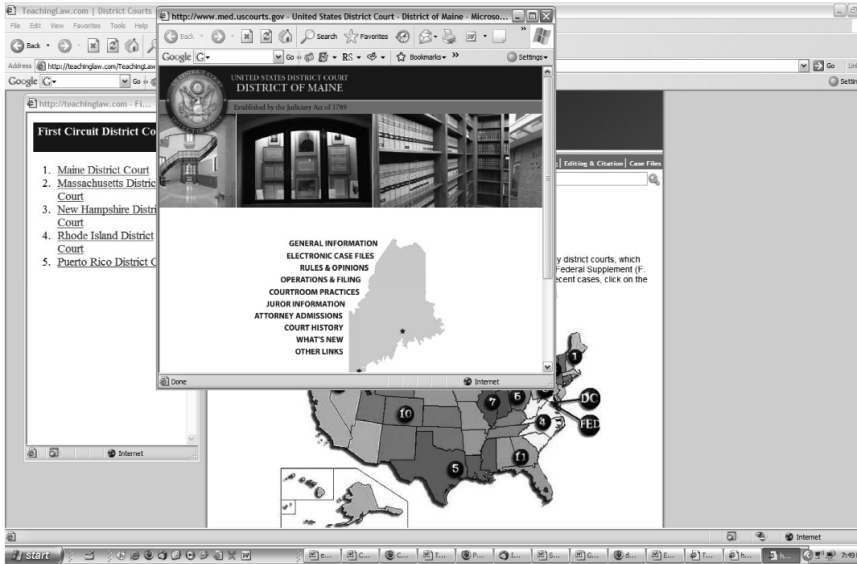


Figure 3. United States Map Linking to Federal Circuits and to District Courts

B. Interactivity and Immediate Feedback

Besides text, I knew I needed to add interactivity to engage students, especially with immediate feedback. I started by designing traditional quizzes with multiple-choice and drag-and-drop questions. The quizzes focused on simple grammar questions as well as those on cite-checking, signals, persuasive authority, and more complicated concepts. I created these quizzes so the

feedback would be immediate; as soon as students choose an answer, they learn immediately if it is correct (see checkmark below) or incorrect (see x below).

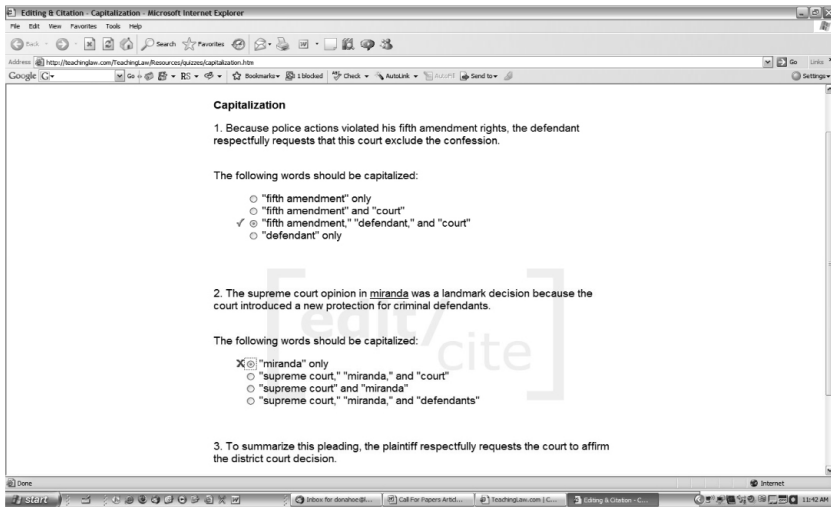


Figure 4. Sample Quiz with Immediate Feedback

While effective for review, these quizzes seemed basic for the more complicated questions I sought to create. The quizzes also appeared in a vacuum and I realized that students learn more when they understand the bigger picture and can apply the concept within a larger context. I also created nontraditional assessments so students could receive feedback not just on individual questions but also on questions as they appeared in a larger legal context such as a memo or an appellate brief. I sought to provide immediate feedback not only with right and wrong answers but also with the number of correct answers, the patterns of problems, as well as links to areas in the e-book to work on those patterns. This way a student could learn his patterns

of problems and immediately begin to work on them through an easy link into content and more interactivity. Below is a screen shot of an editing self-assessment:

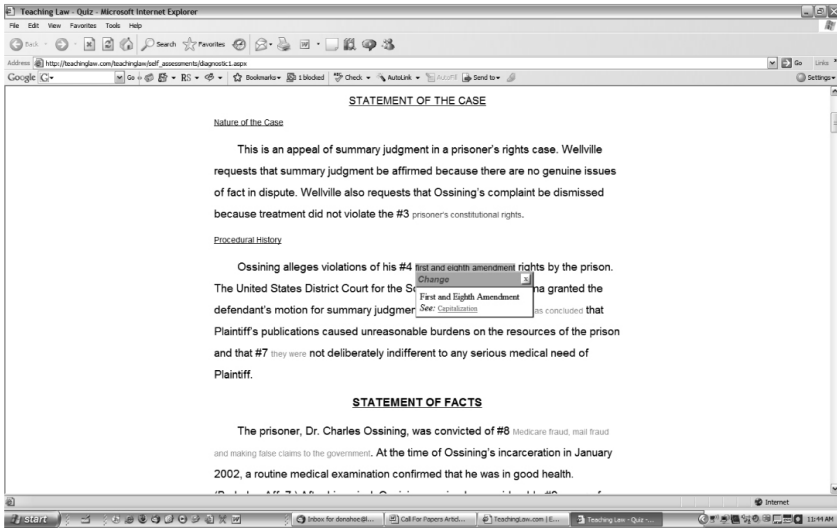


Figure 5. Editing Self-Assessment

Based on my research, I also wanted students to interact with documents—to touch them, manipulate them, and think about the writing process all at the same time. I created sample documents with annotations and highlighting keys so students could get their hands on documents and focus on aspects of writing while manipulating text. The many layers of these documents tapped into the multitasking and telescoping needs of the students as well as their

constant demand for samples of good writing. Below is a screen shot of an annotated memo where students click on features to better understand the different parts of a legal memorandum, view annotations, manipulate text, and focus on the many stages of the writing process itself.

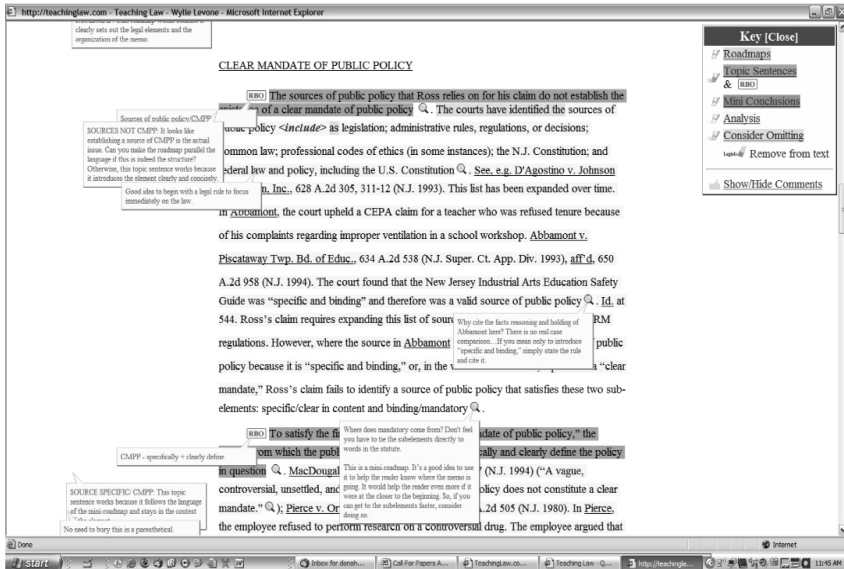


Figure 6. Annotated Memo Sample

C. Multimedia

Besides interactivity, I knew I needed to add multimedia to engage students and provide context and enriched text. Here, I found that too much video or too many intricate graphics took too long to download and often were not worth the “bang for the buck.”⁴⁶ So, I used video to bring legal problems to life in client interviews lasting three- to five-minutes. These clips let students easily absorb the legal issue and feel compelled to help a “live” client. I also added videos of students explaining their research strategy and writing process. Because students learn so well from each other, I thought these videos would

46. See also Caron & Gely, *supra* note 3, at 555-58.

help reinforce text in the e-book in a peer environment. The screen shot below shows a video of a student-to-student testimonial as well as accompanying text that may be accessed through hyperlinks.

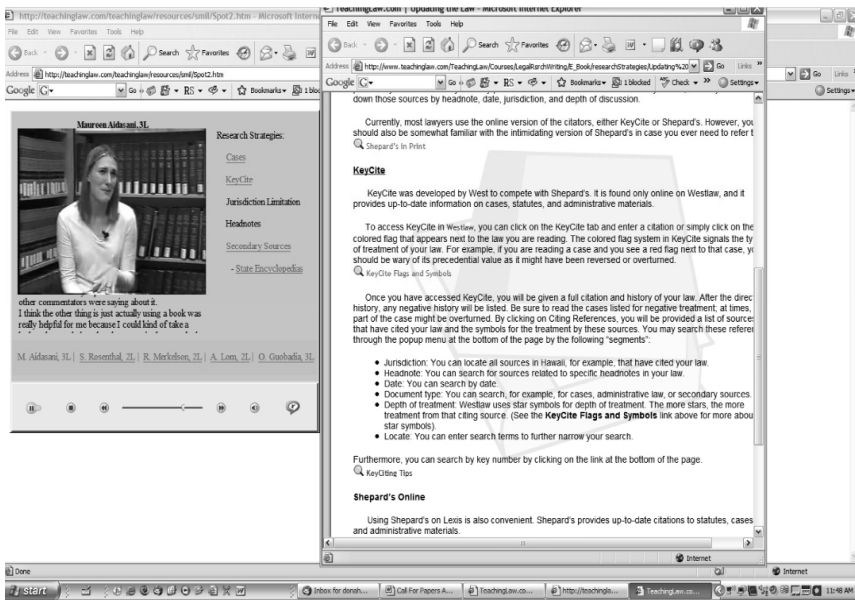


Figure 7. Video Testimonials

D. Convenience

From my research, I knew convenience would be crucial to digital students. My goal was to let students access the e-book at any time from their laptops with no need to carry a large case book or even spend time at the book store buying it. I knew students would prefer to access the e-book at home in their pajamas. I strove for a paperless classroom with assignments that are uploaded and downloaded at students' convenience and without the need to "print."

The screen shot below shows the student view to upload a document. It looks similar to an attachment pop-up screen in e-mail.

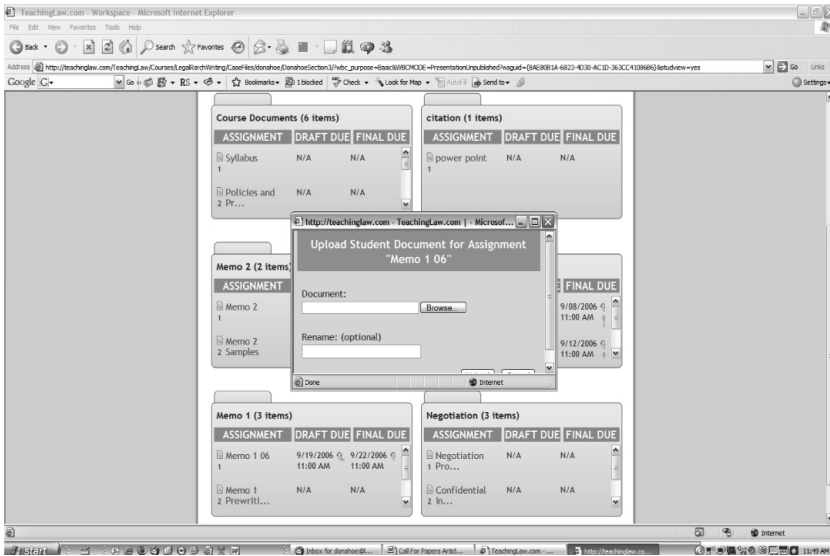


Figure 8. Upload Feature for Students

From the professors' point of view, the product needed to be convenient for many reasons. First, I wanted the paperless classroom to let professors avoid the copy machine. Second, I wanted them to avoid the burdensome process of collecting papers. I strove for a system where they would not need to be in their offices when papers were due or to spend class time collecting them. Instead, I designed the e-book so documents would be uploaded and

time-stamped so professors need not track late papers in an assignment book. Below is a sample shot from the reporting feature for professors.

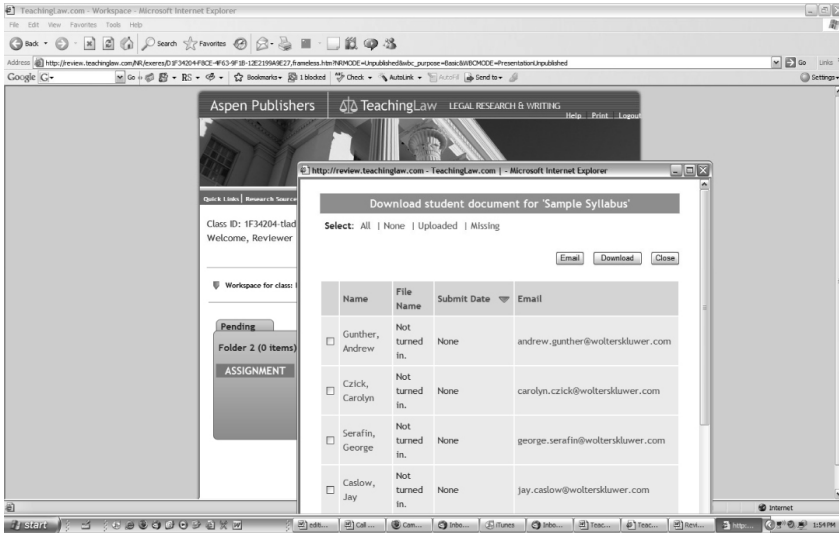


Figure 9. Screen Shot of Reporting Feature

Third, I wanted the electronic book to provide a “bank” for professors to share materials; via the e-book, they would have a resource of assignments, syllabi, multimedia files, and other material at their fingertips. My goal was for this trove to replace any separate idea bank or shared drive among professors. I also wanted a school bank so all the professors using the e-book at an

institution could share documents. Below is a screen shot of the professors' shared bank.

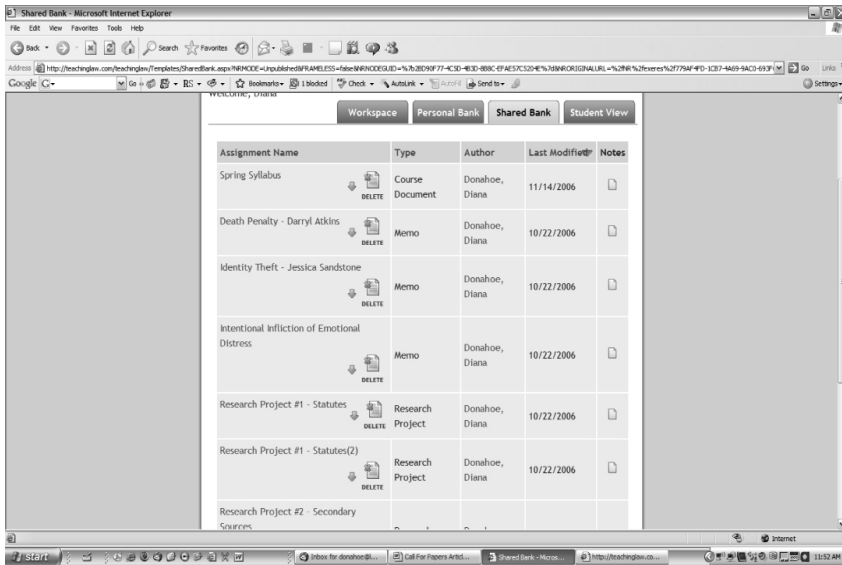


Figure 10. Shared Bank for Professors

V. Using an Interactive Electronic Book Successfully In and Out of the Law School Classroom

TeachingLaw.com is the only text I now require for my course. It has replaced all traditional books I previously required: a legal research text, a legal writing text, a persuasive writing text (or advocacy text), as well as a grammar book. I also no longer use courseware; instead, it is built into the book and designed to fully integrate the content, interactivity, and courseware in one package.⁴⁷ I no longer create class handouts. I distribute assignments, worksheets, class exercises, and extra readings through the case files section of the e-book. The electronic book is convenient and multi-functional because it provides “reading materials” for the students to prepare for class, as well as “class materials” for the professor to use in the classroom.

A. Reading Materials

The “reading materials” are designed to provide not only content but also interactivity for the students. As for content, the materials cover legal research, legal writing, grammar, and citation. These “readings” are linked directly from the syllabus so students simply log into TeachingLaw.com, click on the

47. While systems like Westlaw’s TWEN and Blackboard are effective courseware products, they do not permit integration with casebook content. For more information on courseware products, see Joan MacLeod Hemingway, Caught in (or on) the Web: A Review of Course Management Systems for Legal Education, 16 Alb. L.J. Sci. & Tech. 265 (2006).

syllabus and from there, they can link directly to the readings. No need for them to find a handout or open a book—they simply open their laptops. From the syllabus, a new window opens so students can begin reading and close out the window when done with the screen. They easily can toggle back and forth from the syllabus to readings without losing their place or getting lost in the e-book itself.

I tried to keep most of the “text” pages short so students would not tire of reading on screen. The trick was to create layers—the telescoping feature⁴⁸—so students could go as deep into the text as they wanted. For example, if a student wants more information on a bit of text, he can click on the “more information” icon⁴⁹ to dive deeper into the material. If a student wants to see examples of a certain legal issue or research source, he can click on the “samples” icon⁵⁰ to view them in a different window so those don’t interrupt the flow of the text. If a student wants to test himself, he can do exercises to check his understanding. He can access the exercises by clicking on the “exercise” icon;⁵¹ then, for answers to the exercises, he could click one level deeper into the telescope for the “answer key” icon.⁵²

I also wanted students to explore while doing “reading assignments” to take advantage of their discovery-based learning preferences.⁵³ So instead of simply reading about the U.S. Supreme Court, students can find materials directly on the high court website,⁵⁴ listen to real oral arguments⁵⁵ and read about the court all at the same time. Instead of simply reading about secondary sources, students can read and see sample pages, move their mouse over them to find annotations and references, and do exercises to test their knowledge and use of those materials. Instead of reading about how to find cases and statutes out of context, students can find them in any jurisdiction (state and federal) while learning how to find them. For example, in class, students can research an issue in their jurisdiction without opening Lexis or Westlaw. So, if they are researching Ohio law, students will open a map and click on Ohio. From there, they can choose to search Ohio’s Constitution, statutes, case law, administrative law, or go to the Ohio home page.

48. See Johanson, *supra* note 24.

49. 

50. 

51. 

52. 

53. See Johanson, *supra* note 24.

54. <http://www.supremecourtus.gov/>.

55. <http://www.oyez.org/>.

Some “reading assignments” are not reading at all; they might be video clips. For example, students might receive an assignment via video. So instead of reading about a client’s problems, students will watch a video as if sitting in the partner’s office listening to the conversation. That way, the students get more engrossed in the facts and are more interested in helping to resolve the problem. While I used to play video in class, students now can view clips as many times as they want on their own computers.⁵⁶

As part of their readings, students are assigned “testimonials,” video clips of students talking to other students about research strategies and the writing process. These videos let students learn from more experienced peers. Instead of relying solely on my ideas, they can listen to a third-year student speak of her experience in a law firm. By listening to a number of videos, students can pick and choose strategies that speak to them. If they do not understand the video content, I provide links to parts of the e-book on those topics. As a result, students often listen to video while reading content at the same time, playing to their desire to multitask with multimedia.

I also wanted students to receive immediate feedback while doing “reading assignments” out of the classroom. I assign quizzes, self-assessments, and annotated samples all semester to provide students with immediate feedback. The quizzes are quick multiple choice or drag-and-drop questions that let students test their knowledge in a specified area. The self-assessments let students read a whole document and answer questions within it so they can take into account the overall context, purpose, and audience; these assessments are more complex and in-depth than quizzes. Annotated samples let students interact with documents and get immediate feedback in comments on screen that pop up and disappear with the click of a button.

My overarching goal with the reading assignments is to help students reach a high level of learning before they enter the classroom. The interactivity, immediate feedback, and engaging exercises let them manipulate and digest material so that they are ready to discuss the subject in a deep and informed manner in class.

B. Class Materials

By piquing their interest out of class with interesting and interactive material, students come to class ready to learn and ready to teach others. They ask more pointed questions, pressure me to dive deeper into the subject matter and force each other to think more critically about the material than they had when I used traditional texts. This means my goals, role, and techniques in class also have changed dramatically to meet my students’ learning needs.

First, because the students are more prepared and interested in materials when they come to class, my primary goal is to engage them to make them critical thinkers and independent writers. That way, they can ask themselves

56. In the past, if students wanted to review the in-class video, they had to contact me or the audio-visual department to set up a time to watch it at a law school location.

pertinent questions when they are young associates and I am not there to consult about research and writing projects. I use interactive materials, class discussions, group activities, and exercises from the e-book itself instead of lecture or the Socratic Method. “Learning does not happen when someone tells you something new. We hardly can do anything new after just listening.”⁵⁷ Instead, students learn by doing. The more I can get students doing in the classroom, the more they will understand and retain the material.

Second, my role in class also has changed dramatically. I now focus not only on how I teach but also on how students process what I teach.⁵⁸ By taking into account the way students learn in class, I have adjusted my teaching. While I still may stand in front of the class, I am no longer always the focal point nor are students merely receptacles ready for all the knowledge I pour into their minds. Instead, I often am a facilitator, helping students learn from each other. Students no longer need to trust only me; they can trust each other, and more importantly, learn to trust themselves. As a result, students in class have transformed from passive participants to active learners and discoverers.⁵⁹

Third, I use a variety of pedagogical techniques to facilitate learning in the classroom. I use both online exercises and annotated samples from TeachingLaw.com to help facilitate that learning. I also take advantage of the students’ desires to multitask, telescope, and simultaneously open multiple windows so the classroom mirrors their learning styles.

The online exercises in TeachingLaw.com are particularly useful for collaborative learning environments. For example, I will assign an online, peer review exercise as an out-of-class assignment. The students download the assignment, upload their peer’s document, and then do the exercise as part of their reading assignment. In class, students discuss the peer review assignment with an assigned partner. My role in this part of class is to facilitate specific, insightful discussions with peer groups; I walk around and ask as well as answer questions in the student pairings. Students learn this way through discovery—discovery of their peers’ writing. They ask insightful questions that easily transfer to their own writing. In the next part of the class, I will lead a general discussion with the whole group to address common concerns and issues. These discussions help each student home in on specific issues and learn about general problems affecting the whole class. Here, I try to talk as little as possible and let the students feed off each other. The more students talk during these sessions, the more they learn and the more knowledge they can apply to their future assignments.

57. Aldrich, *supra* note 32, at 85.

58. 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. 17 (2002) (“Teacher-centered pedagogy impedes success in the classroom, the principal flaw being that it focuses on how teachers teach without taking into account how students learn.”).

59. Carlie Windham, Father Google & Mother IM: Confessions of a Net Gen Learner, *Educause* 43, 52 (2005).

The annotated samples in TeachingLaw.com also are extremely useful for collaborative learning. Here, I ask students to click on a sample (memo, brief, or other document) in the e-book. While I will stand at the front of the room with the document projected onscreen, I ask questions about each part of the document. Students provide answers and ask more pointed questions relating to their own documents. I also ask students to manipulate the text of the samples; they can look for wordiness, and then delete it; they can outline the document, and then click on a sample to check their work. With one click of a button, students also can highlight part of a document (all the topic sentences, or the analysis, or the roadmaps) so the discussion can be focused. These techniques all let students learn not just from me standing at a podium but also from each other, from interacting with on-line samples, and from watching the rewriting process come alive as we concentrate on one part of it at a time. The combination of collaboration and focusing lets students become effective learners and critical thinkers.⁶⁰

I also harness students' desire to multitask, open multiple windows and telescope.⁶¹ Throughout class, I require them to open multiple screens on their laptops as I toggle back and forth. Because students follow with me on their own screens, they have little or no time to IM their friends or play computer poker. I also telescope within windows so we might be three levels deep; students must pay careful attention to follow the logic. At first, many students found that the class went too quickly and that I had too many screens open at once; they complained they could not get the screens open quickly enough to follow (much less to have time to check e-mail). As a result, I now post a class outline, in the e-book and on a projector, with relevant windows linked so students can open them before class starts and have them minimized and ready to bring up on their laptops. This simple solution has permitted me to cover the same amount of computer territory but allows students to keep up. These techniques let my students multitask and telescope during class but remain focused on my interactive materials.

I also choose materials for class based on the needs of my students. Now that they are so interactive in class, I have a much better sense of what material they comprehend and what I need to address more aggressively. Further, self-assessments are embedded in the electronic book and after students take these, I automatically receive a report on their performance. I can view these reports for individuals as well as track each class cumulatively so I can determine the class needs. When I tell my students that "eighty percent of you got this issue wrong," they pay more attention than when they think they understand the problem. This method also lets me ignore issues that students understand so as not to bore them or insult their intelligence.

60. "Our task as educators involves far more than teaching the content of our courses. We need to teach students how to become effective learners and guide them in honing their critical-thinking skills." McGlynn, *supra* note 23.

61. See Johanson, *supra* note 24.

All these methods let students become active learners; they can experience while they learn so the learning is more engaging and they are more likely to retain their knowledge and use it later in their legal practice. Because my goal is to make my students independent legal researchers, writers, and practitioners, their digital learning style helps facilitate my course goals.

IV. The Strengths and Weaknesses of Using an Interactive, Online Book in Law School Education

While most students appreciate the use of technology to meet their learning styles, I was concerned that TeachingLaw.com would be underutilized or used poorly because it was so different from the expectations of law students and professors. Its strengths and weaknesses are similar from the perspectives of students and teachers.

The greatest strength of the electronic book, in students' view, is its convenience. It fits their technological lifestyle. Instead of lugging another heavy law book in their already burdened back-packs, students simply carry their laptop—an everyday tool they tote anyway. Students also do not need printers; they read on screen and upload documents without spending money for printing. Students do not need to keep track of handouts or reading assignments; the e-book keeps everything they need in one place.

Professors have similar appreciation for the e-book's convenience.⁶² First, they need not worry about making copies before class. Instead, they simply upload assignments into the case files section of the e-book. If they want to make a change or they find a small error before class, they can make fixes from their homes with a simple click of the screen. Professors do not hear complaints that students “never received an assignment” or “need an extra handout.” Class time is never spent on “collecting assignments.” Instead, assignments are uploaded into the e-book by the students before class starts, allowing the class to proceed on time. If an assignment is due outside of class time, professors need not worry about collection; no boxes are needed outside of offices.

Administrative annoyances that waste professors' time also are avoided. Professors need not spend time counting papers or discovering whose paper is late. All documents are time-stamped when uploaded and can be sorted by time or student name. When sorted by time, names of students who have not turned in the assignment or who turned it in late appear atop the screen and in different colors for easy delineation. Professors can send e-mails directly from that screen to the student with a simple click.

Another time-saving function lets professors copy, send, or share a class workspace created in TeachingLaw.com. These features allow professors to start with workspaces they have created for their class, including the syllabus, materials, and problems within organized folders (perhaps from a previous

62. In fact, some professors who do not teach Legal Research & Writing are using the e-book's courseware package to teach other courses.

year), and copy it to a new class workspace. I use this function to create my new class without reinventing the wheel; I simply hit the copy function and rename the workspace and my class for the next year is automatically set up (similar to the “save as” function in Word). From here, I need only make a few modifications or “hide” folders that I may not need until later in the semester. Other professors use this function to create a full workspace, then “send” it to all their adjuncts so the course is ready to go in its full form. And other professors use this function to co-teach a class.

Perhaps the greatest advantage of the e-book from professors’ point of view is the shared bank; it lets any professor using the e-book to access files from other professors using the book (professors can make files public or keep them private). The electronic book also has a school bank so professors from the same institution can share materials with each other.

The interactivity also is a great strength of TeachingLaw.com for professors and students. Students use the quizzes, annotated documents, and self-assessments, and over the years have asked for more of them to be embedded in the text.⁶³ While some students use these tools while reading during the semester, all of them use them to prepare for my exam. Students rave about the usefulness of the interactive pieces in providing immediate feedback and helping them retain materials, and professors no longer need to create practice exams or quizzes for students.

I was concerned that reading on screen would be a weakness of TeachingLaw.com. I deliberately had chosen not to create a print version because the text was not linear and the interactivity made printing pages interfere with the usefulness of the electronic book. However, some students complained that they could not highlight and write notes on the e-book nor could they access it, say on the subway or mass transit. To address these issues, I created a CD version of the text of the e-book, and then I created a “Print Companion”—a printed book version of the written, static content. While these versions do not include the web’s interactivity, they do point out to readers where it exists so students realize when they are missing interactive resources. These sources seem to satisfy students who wanted a print version; the vast majority of students continue to read the online version. Now, there is a free application available on line that lets students highlight and write sticky notes on web pages. This feature, diigo.com,⁶⁴ should provide students the tools to easily mark up the e-book online while maintaining their ability to link and use interactive features.

I also was curious as to how many students would access the e-book for written class assignments even if a reading assignment was not required in the syllabus. If the e-books were not tapped as a resource, then I would be

63. In fact, each summer I added more quizzes, checklists, and other interactive material to the e-book.

64. Diigo.com is a wonderful tool to mark up any web page and should be tested by students regardless of whether they are using TeachingLaw.com.

concerned that I was not meeting its goals. I was relieved to find that students rely extensively on it to learn materials as they write documents; again, they are engaging actively in the text while writing assignments. They claim to use the annotated samples most often but they also return to content and class outlines to reinforce concepts already learned.

I also worried that students might not take maximum advantage of the electronic book's full capacity. I realized that students often wander onto unhelpful web pages while in class. Therefore, I wanted to ensure that students were on the same "page" or "screen" as me in class as I progressed through the e-book. I realized that students needed to follow me closely or they would miss out on the class' interactive nature. I created a folder with class outlines and before every session I upload an outline with relevant links. These links might be to video, documents, or web pages—mostly within TeachingLaw.com. Students then open the links at the beginning of class and toggle back and forth on electronic pages with me as I progress through my lesson plan. As a result, I keep students actively engaged through the Internet during class.

I also thought that professors and students would be skeptical of using an electronic work as a legal text for class. In fact, many students initially were skeptical. However, once they used the e-book, they became converts, especially when compared with their experiences with print texts. Now, many students in my classes cannot fathom using a flat, traditional print book for Legal Research & Writing.

The greatest weakness of TeachingLaw.com is that it requires a user-school to have an excellent infrastructure to make the Internet available. If that system is faulty or slow and students cannot easily access the e-book in class, they will be frustrated. Wireless access, while preferable, is unnecessary as long as students in class can log into the e-book via the internet. The e-book, of course, requires students to own a laptop or access one easily. If financial concerns are paramount and most students do not use laptops, the e-book would be ineffective.

VII. With An Eye To the Future of Law School Learning

Through my experiments with the tools in TeachingLaw.com, I have learned to harness students' energy, enthusiasm and learning styles to engage them in the classroom on their side of the laptops. While they still peer at me from behind their screens, my students are more engaged, productive, animated, and critical in their thinking than when I used traditional print textbooks. They interact more with each other, and, from participating in and listening to that interaction, I can learn from my students. The best of these lessons: Students adapt to new technologies easily, embrace them and expect them to enrich their everyday lives.

Because they keep adapting to constantly changing technology, professors, administrators, and publishers will need to do this, too. I will keep researching and studying digital students' behaviors, preferences, and generation patterns.

Those will keep changing with technological advances and as younger students move into the graduate school environment. To meet these students' learning needs and expectations, we will need to adapt our pedagogies and incorporate more technological advances. Some of the tools I am researching and experimenting with include blogs and wikis, as well as immersive digital environments, such as game-based learning and digital simulations.

A. Blogs and Wikis

Because digital students log onto blogs and wikis every day to communicate and collaborate, we easily can use these types of sites to enrich the learning environment in and out of the law school class. A blog (short for web log) is a website that acts as an online discussion forum; bloggers post entries using text, video, pictures, links, and other interactive media; they comment on each other's posts. The resulting interactive forum allows for discussion threads using multimedia that can be searched and manipulated easily. Most blogs today are discussion forums for defined groups like political organizations, or designed around pop culture or for social networking.⁶⁵ If used effectively and creatively, blogs also can be educational tools for professor-to-professor and professor-to-student communication and collaboration.

On blogs, professors can share ideas on teaching techniques, scholarship, and service. Professors first should consider blogging with each other on existing sites, and there is a law professor blog⁶⁶ designed to help them in their teaching and scholarship. Here, professors can join blogs specific to their legal specialties, from "Administrative Law Blog" to "Wills, Trusts and Estates Blog." Second, professors should consider creating their own blogs on other topics of interest to exchange ideas. For example, I created a blog for professors using TeachingLaw.com to exchange innovative ideas while using this platform.⁶⁷ Third, administrators should create blogs to address areas in their schools for discussions of content, teaching methods, trouble-shooting, and committee work. Imagine a blog at your school for first-year professors, adjunct programs, or clinical faculty. Better yet, imagine some committee discussions occurring on a blog instead of through a series of long, face-to-face committee meetings.

Blogs also can be used for professor-to-student communication and collaboration. A professor can create a blog with discussion threads and monitor it as students post entries and comments regarding legal issues that arise in class or areas of law on the syllabus. Blogs can aid online study groups. I plan to experiment with "writing assignment blogs" in my course—I will place students in small groups and have them create a group blog. Here, they must post entries and comments on their research strategies and writing processes during assignments. I hope these blogs will stimulate discussion

65. For updated lists on the most popular blogs, see <http://technorati.com/pop/blogs>.

66. See <http://www.lawprofessorblogs.com>.

67. See <http://teachinglaw.wordpress.com>.

on product and process; I will monitor the substance as well as the traffic to prevent misinformation and to ensure that all members contribute equally. The out-of-class blogging also should provide me with insight into students' thinking and learning to help me design lesson plans aimed at the right level during the semester.

Wikis also can be useful in legal education. A wiki is a website that allows for simultaneous collaborative writing. A wiki is made up of multiple pages that include links and other interactivity created by many users. The most widely known wiki is Wikipedia⁶⁸ and digital students use others like wikitravel,⁶⁹ wikiHow⁷⁰ and WikiSummaries.⁷¹ Law professors can use wikis for collaborative writing in their courses to engage students in their learning. David Thomson, an innovative professor at University of Denver, Sturm College of Law, used wikis in his administrative law class in two creative ways. First, he required his students to write a joint outline on a wiki; it was the only outline he permitted in his sit-down exam. He also created small group wikis for students to perform research on specific agencies. The result was student-generated, interactive, multi-media rich, collaborative documents that engaged and motivated his students to learn about administrative law.⁷²

Wikis and blogs both are available now and can be used creatively and effectively in law school education. Creating public or password-protected wikis and blogs is easy and can be handled by research assistants, students, or by the professor directly on a number of free websites.⁷³

B. Immersive Digital Environments

Another up and coming pedagogy I am pursuing is called "immersive digital environments."⁷⁴ In this pedagogical approach, teachers engage students in an immersive world where they perform complex actions to achieve desired learning goals. As a result, students learn through performance and active discovery.⁷⁵ By totally immersing students in their familiar, computerized world, this approach "exploits the promise of emerging interactive technologies, meets students' expectations for deep digital engagement, customizes the experience to each student's unique needs, and promotes both long-term

68. See wikipedia.com.

69. See http://wikitravel.org/en/Main_Page.

70. See <http://www.wikihow.com/Main-Page>.

71. See http://wikisummaries.org/Main_Page.

72. For more information on David Thomson's use of wikis and other innovative ideas in legal education, see David I.C. Thomson, *Legal Education for a Digital Age* (LexisNexis 2009).

73. See blogger.com and wordpress.com as well as wikispaces.com.

74. Forman, *supra* note 13.

75. See *id.*

memory and the transfer of learning to the practical realm of everyday life.”⁷⁶ Immersive digital environments can take many forms, including video games and digital simulations.

The use of video games⁷⁷ as a teaching device, also known as digital game-based learning (DGBL), will make TeachingLaw.com look like a classroom dinosaur. The games will be more effective because they will place the learning within a more meaningful context⁷⁸ using life-like graphics; the learning will be applied and practiced within that context⁷⁹ at different levels. Learning that occurs in a meaningful and relevant context is more effective than learning that occurs outside of those contexts, as is the case with most formal instruction.⁸⁰ Many serious game proponents have been conducting research on how games can best be used for learning.⁸¹ I also am pursuing avenues to teach with digital game-based learning.

Simple simulations⁸² are the precursor to digital game-based learning, and many professors have used them for years. Clinicians, for example, ask students to make opening statements, closing arguments, cross-examinations, and other skills sets in classroom simulations. Mock trials and moot court competitions also are simulations. But these basic versions also can be created in the digital environment to engage even more students—not just in the classroom or a competition. For example, in *Objection!*,⁸³ a game that teaches evidence, students are situated in a court and asked to provide judges with a basis for their objections as evidence is presented at trial. As students proceed through trial, the level of play increases as their performance improves. Although the graphics in this game are simple, the interactivity, immediate feedback, and engaging simulation make a creative tool for students learning about evidence; the learning occurs on students’ laptops—not in class.

These types of simulations and video games are starting to appear⁸⁴ and will pave the way for full-featured classroom games. The next step is to create lawyer-avatars and immerse students in a legal environment that seems realistic, enables them to make decisions in a professional manner, and provides immediate feedback when they make mistakes while representing

76. *Id.*

77. For more information on video games, see Prensky, *Don’t Bother Me Mom, I’m Learning*, *supra* note 41; Aldrich, *supra* note 32.

78. *Id.*

79. *See id.*

80. *Id.*

81. Richard Van Eck, *Digital Game-Based Learning: It’s Not Just the Digital Natives Who are Restless*, *Educause* 17 (2006).

82. For more information on simulations, see Aldrich, *supra* note 32.

83. *Available at* www.objection.com.

84. *See also* *Civil Objection*, *available at* <http://www.objection.com/prodo2.htm>.

virtual clients. To create effective digital games and simulations, professors must forge new partnerships with game designers and legal publishers.

If we want to engage the video-gaming generation of the future, a product such as TeachingLaw.com will be insufficient. We will need to become even more innovative and integrate new technology as it becomes available. Wikis and blogs can be easily linked through TeachingLaw.com now so they can be used immediately and effectively. But other tools such as immersive digital environments are still in their initial development and may take a variety of forms in the future. While I originally thought the completion of TeachingLaw.com would be the culmination of my research, I realize it is just the beginning.

VIII. Conclusion

While technological tools such as TeachingLaw.com, blogs, and video games may not be for everyone or every course, they signal a fundamental shift in the teaching paradigm. No longer will students be content with “flat” text; they will demand a more familiar, multimedia, three-dimensional environment. Interactive electronic books, blogs, and collaborative sites already are becoming the new teaching medium. Video games and simulations will be the medium of the future. Because students yearn to be engaged in the classroom through new, exciting technological advances, they will expect law schools to meet their learning needs.

I encourage the intellectual debate to move beyond waging a war against laptops to discussing how best to engage digital students with their laptops. I suggest law professors move beyond the Socratic Method and traditional teaching materials and create tools to engage these students so they also will experience renewed energy in the classroom, encourage the discovery of information and critical thinking, and watch as their students power up in their studies. I encourage law school administrations to work closely with their technology departments to ensure that their infrastructure will meet the needs of future generations.⁸⁵ Publishers, as well, must meet the new paradigm by

85. Although professors can create exciting tools and pedagogies for learning with technology, these innovations will not function if a law school's infrastructure is insufficient. Besides technological advances, such as immediate access to the Internet through wireless connections throughout a school, administrators must rethink their use of space—in and out of the classroom. First, classrooms need to be outfitted with technology so that professors can play video and audio, access the Internet, and project their innovations without needing to drag extra equipment with them to class. Less obvious is the need to reconfigure the classroom space to facilitate collaboration and interactivity. Desks and chairs no longer need to be configured around a central podium space nor should they be bolted to the floor. Instead, spaces need to be redesigned for movement so students easily can interact with each other, collaborate, and reach multiple forms of interactivity simultaneously. Second, hallways should be equipped with spaces for collaborative learning through technology. Adding electrical outlets and open tables and cozy meeting places will help facilitate the interactive and collaborative environment that these students need for learning. For an interesting book on the use of space to meet the digital students' learning needs, see Diana C. Oblinger, *Learning Spaces* (2006) (an electronic book located at www.educause.edu/learningspaces).

merging their publishing and technology departments so that technological support will become a fundamental aspect of editing, publishing, and acquisition.

It is time to declare a truce in the war against laptops. We should join forces with our students and let them help us create enriching and engaging learning experiences using their laptops and other technology. Students have many innovative ideas and will happily help create web sites, blogs, wikis, and other web-based tools for class. So let's stop worrying about what our students are doing on their side of the laptops; instead, let's harness that multitasking energy and listen to the clicking in our classes with the satisfaction of knowing that our students are surfing our websites or Twittering us with updates on their learning.