Teaching Electronically: The Chicago-Kent Experiment

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Over the next few years, it will become routine for publishers to provide casebooks in an electronic format.[1] As a consequence, faculty members will, with increasing frequency, walk into classrooms where many, if not most, of the students have a notebook computer in front of them. The computer will contain an electronic version of the casebook; the students' pre-class preparation; in-class notes, and, toward the end of the semester, the course review outlines. Some instructors embrace this prospect enthusiastically and with a welcome sense of revolution; others are more or less indifferent; and, others, hostile. But no matter where on the continuum from love to hate our attitudes toward computers may happen to fall, one question confronts us all: can we use the technology that will inevitably arrive to improve the teaching of law?

I. PEDAGOGICAL GOALS

If computers improve law teaching, they will do so by improving the ability of teachers and students to achieve important pedagogical goals.[2] Some may object at the outset that computers clearly *hinder* the realization of important pedagogical goals. Most, for example, would agree that one essential goal of legal education is imparting appropriate norms of professional behavior. But will we achieve this goal if we (inadvertently) give the impression that mastering the law is largely a matter of information storage and retrieval? There are

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1. The backing for this prediction comes from the (relatively) enthusiastic student reception of electronic casebooks and notebook computers. *See infra* note 16 and accompanying text.

2. Another way to improve law teaching would be to substitute newer and better pedagogical goals for older and poorer ones. If computer technology improves law teaching, it will—at present, at least—*not* do so in this way. This is not to deny that computer technology may eventually change pedagogical goals; at the moment, however, there is no indication that this is happening.

dangers here, but they are surmountable.[3] The computer is merely a tool, and we should not let our use of the tool dictate the values we endorse; rather, we should ensure that the values we endorse dictate the use we make of the tool. The point is, if we cannot agree on goals, we surely cannot expect to resolve the issue of whether computer technology can help us achieve important pedagogical goals. There is no question that goals vary. One reason is that a teacher is not merely a conveyor of information; a teacher—a good one, at least—is also a model of intellectual and professional virtues: responsibility, thoroughness, tolerance, and so on. The list and the interpretation of the items on it vary from instructor to instructor, and this is one important reason pedagogical goals vary. However, disagreement on some goals does not mean disagreement on all. Certain basic goals are widely shared, relatively uncontroversial, and sufficiently important that it makes sense to ask whether computer technology can improve our ability to achieve those goals. Consider the following four goals.

(1) *Imparting a basic knowledge of black letter rules.* An adequate knowledge of an area of the law requires a knowledge of the relevant legal rules. One's knowledge of contract law, for example, would be deficient if one did not know the common law "mirror image" rule: an acceptance of an offer fails to create a contract if the acceptance contains terms that differ from the terms of the offer. Of course, knowing the black letter rules is a far cry from knowing and understanding the law. Part of understanding the law is knowing the underlying rationales—the various points and purposes—behind the black letter rules. This brings us to the second goal.

(2) *Developing an understanding of the underlying rationales behind the rules.* For example, one point of the "mirror image" rule is to ensure that the legally binding agreements the law recognizes consist of terms on which *both* parties agree. Understanding the rationales behind certain rules can explain in part why common law courts often find that offer and acceptance created a contract even where the acceptance was *not* a mirror-image of the offer.[4] The courts are

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3. Computerized instruction may actually help here to the extent that we can use computers to simulate real-life professional and ethical dilemmas. Doing so would perhaps drive home the need for professional and ethical standards more effectively than merely reading printed case studies.

4. The courts achieve this by interpreting communication that is acceptance. A court can turn (what to all appearances is) a nonmatching acceptance into a matching one by holding that only a part of the communication—the part that matches the offer—constitutes the acceptance and by holding that the nonmatching part is something else (e.g. a proposal to add to the terms of the contract). *See, e.g.*, Valashinas v. Koniuto, 124 N.E.2d 300 (N.Y. 1954).

convinced (in many of the cases, at least) that both parties intended to create a legally binding agreement and did agree on contractual terms.[5] In general, knowing the underlying point or purpose of the rule guides one in applying the rule to particular fact patterns, enables one to identify and justify exceptions, and helps one resolve conflicts between rules. Of course, no matter how intensive the legal education, one can, in the three years of law school, teach only a small fraction of the black letter rules and their associated rationales. This is one reason that a major goal of law teaching is to give students the ability to approach and learn new areas of the law on their own—which brings us to the third goal.

(3) *Developing the ability independently to analyze legal issues.* Because, as lawyers, students will need to learn, understand, and apply legal rules on their own, an essential goal of law teaching is to develop this ability. One central area in which lawyers engage in legal analysis is legal research and writing. Consequently, this goal ties in with the fourth goal.

(4) *Developing the ability to research and write.*

I suggest that these goals are sufficiently widely shared and important that it is worth asking whether computer technology can improve our ability to achieve these goals.

I will focus primarily on the second goal (understanding the rationales behind the rules). Of course, to improve students' abilities to achieve this goal may also improve their abilities to achieve the first goal (knowledge of black letter rules) as a knowledge of a rule is obviously a precondition of understanding its purpose. Improving students' abilities to understand the rationale behind a rule may also improve their abilities to achieve the third goal (analyzing independently), for independent analysis builds on a prior understanding of the law. I will not discuss the fourth goal (research and writing). Computers have proven helpful here, but our focus is on the use of computers to teach the traditional substantive law courses.

II. HOW COMPUTERS DIFFER

If computers improve our ability to achieve the four goals mentioned above, they do so because they differ in crucial ways from printed materials. What, then, are the relevant differences? And, do these differences make computerized materials better? Let us take the first question first. I will list eight differences. The list is hardly

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5. *Id.*

exhaustive. The only thing special about the eight identified features is that they all may (arguably) make computerized materials superior, for some purposes, to print materials.

(1) *Search capabilities*: Computers excel at storing information and at searching for the stored information quickly and accurately. Law students need to manage a very large amount of information, and the obvious thought is that the search capabilities of computers could help them do so.

(2) *Hypertext links*: A hypertext link is essentially a cross-reference. In a print book, for example, one might see the following cross-reference: For a fuller discussion, see Section II. Texts displayed on computer screens may, of course, contain similar cross-references. There is one crucial way, however, in which hypertext improves on print cross-references. One can program the computer so that a click of the mouse button on the words "Section II" brings Section II immediately up on the computer screen; another click returns one to the original location.

(3) *Projection*: If one links a computer to a projector, one can project on a large screen whatever the computer is currently displaying. If an instructor does this in class (from a notebook computer on the podium), the result is an electronic chalkboard. One can quickly display large amounts of information without having to turn one's back to the class to write on the chalkboard (laboriously and, for many of us, not all that legibly).

(4) *Interaction*: Computer programs can be interactive. They can pose questions or provide answers and other forms of feedback. Print books do not, of course, have to be wholly noninteractive. One can, for example, pose a question on one page and put the answer on another with instructions to answer the question before going on. The computer, however, offers far greater possibilities (such as automatic score-keeping).

(5) *Multimedia*: Computers can incorporate animated graphics, sound, and video. This provides avenues for learning that extend well beyond what is possible with print.

(6) *User modification*: Computer programs can be highly user modifiable. Modification can tailor-make the program to suit individual needs. Where computers are used for learning, modification could accommodate different learning styles.

(7) *Network connectivity*: Students and faculty can connect computers to the law school's computer network. This facilitates communication, delivery of teaching materials, and allows on-line research.

Can one exploit these differences to improve the effectiveness with which one achieves the pedagogical goals identified earlier?

III. IS DIFFERENT BETTER?

There is one relatively obvious—and relatively uninteresting—way in which the answer is clearly, "Yes." Consider courses that concern a complicated body of statutory law. One does not read a code from beginning to end; one reads relevant sections jumping from passage to passage guided by explicit and implicit cross references. The search capabilities and hypertext capabilities of a computer clearly facilitate this type of reading.   If the code is available in an appropriate electronic format, one can search the statutory law quickly and efficiently to find relevant passages, as well as use hypertext links to jump back and forth between cross-references. Such access to codes arguably improves students' ability to achieve the four goals identified in Section I. However, this point—while not unimportant—hardly justifies the fanfare and sense of revolution with which some have greeted the appearance of electronic teaching materials. Are there more interesting and substantive ways in which computerized instruction can help us achieve the goals in question?

To answer this question, the Chicago-Kent College of Law (Kent) has, for three years, run an experimental notebook computer section.[6] The students in the section are first-year students; each one is required to have a notebook computer. Kent's Computer Learning Center constructed, or obtained from publishers, electronic versions of all the assigned texts and loaded the electronic versions on the student's computers. The program used for the electronic materials was Folio Views (Views), a document storage and retrieval system.[7]   For concreteness, here is a sample of a typical Views display on a notebook computer screen. This one shows the beginning of the "hairy hand" case, *Hawkins v. McGee*,[8] from an electronic version of a contracts casebook:[9]

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6. The initial 1994-95 section consisted of thirty first-year students; it grew to one hundred students in 1995-96, and will continue in 1996-97 with another one hundred first-year students.

7. The 1996-97 section will also use West's Premise software.

8. 146 A. 641 (N.H. 1929).

9. This particular book was "home made." I developed the casebook with the help of the Computer Learning Center.

Hawkins v. McGee
146 A. 641 (N.H. 1929)

full citation

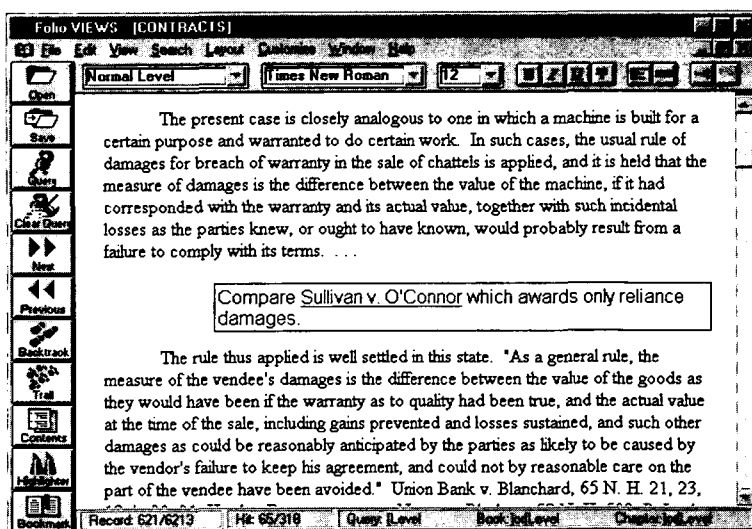BRANCH, J. 1. The operation in question consisted in the removal of a considerable quantity of scar tissue from the palm of the plaintiff's right hand and the grafting of skin taken from the plaintiff's chest in place thereof. The scar tissue was the result of a severe burn caused by contact with an electric wire, which the plaintiff received about nine years before the time of the transactions here involved. There was evidence to the effect that before the operation was performed the plaintiff and his father went to the defendant's office, and that the defendant, in answer to the question, "How long will the boy be in the hospital?" replied, "Three or four days, not over four; then the boy can go home and it will be just a few days when he will go back to work with a good hand." Clearly this and other testimony to the same effect would not justify a finding that the doctor contracted to complete the hospital treatment in three or four days or that the plaintiff would be able to go back to work within a few days thereafter. The above statements could only be construed as expressions of opinion or predictions as to the probable duration of the treatment and

Views allows students to do two things that will be crucially important in what follows: create hypertext links, and take notes within the program. The following screen illustrates both:

The present case is closely analogous to one in which a machine is built for a certain purpose and warranted to do certain work. In such cases, the usual rule of damages for breach of warranty in the sale of chattels is applied, and it is held that the measure of damages is the difference between the value of the machine, if it had corresponded with the warranty and its actual value, together with such incidental losses as the parties knew, or ought to have known, would probably result from a failure to comply with its terms. . . .

Compare Sullivan v. O'Connor which awards only reliance damages.

The rule thus applied is well settled in this state. "As a general rule, the measure of the vendee's damages is the difference between the value of the goods as they would have been if the warranty as to quality had been true, and the actual value at the time of the sale, including gains prevented and losses sustained, and such other damages as could be reasonably anticipated by the parties as likely to be caused by the vendor's failure to keep his agreement, and could not by reasonable care on the part of the vendee have been avoided." Union Bank v. Blanchard, 65 N. H. 21, 23,

The box that says "Compare *Sullivan v. O'Connor*[10] which awards only reliance damages" is a note. The note was not part of the

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10. 296 N.E.2d 183 (Mass. 1973).

program as originally provided to the students; rather, the note is an example of the sort of note students can add to the program. They can do so anywhere in the casebook. This note contains a hypertext link. The underlining of *"Sullivan v. O'Connor"* indicates a hypertext link (to, as it happens, *Sullivan v. O'Connor*; clicking on the words brings that case up on the computer screen; clicking on the "backtrack" button returns one to *Hawkins v. McGee*). By combing notes with hypertext links, students can annotate their hypertext links. (It is worth noting that hypertext links are not confined to notes; students can create them anywhere in the program and link them to anything in the program.)

Kent's aim in the first two years of the experiment was to develop a paradigm of how to use electronic materials. We[11] imposed three conditions on the paradigm. First, the paradigm had to be supported by cogent theoretical reasons to think that instructors and students who conformed to the paradigm would increase the effectiveness with which they pursued the relevant pedagogical goals. Second, the paradigm had to be sufficiently well-defined to yield testable predictions that would allow us to determine whether it really did increase effectiveness with which the goals were pursued. Third, students—after appropriate instruction and encouragement—had to conform to the paradigm. A paradigm to which students would not or could not conform would be of little value, no matter how attractive it might seem in the abstract.

IV. THE INITIAL PARADIGM

In developing the paradigm, we focused on one essential task that first-year students face: learning the underlying rationales behind the rules. The special difficulty here is that learning the underlying rationale is typically *not* merely a matter of mastering some simple formula that expresses the purpose or point of the rule. Consider criminal negligence. The problem of defining the degree of negligence necessary for criminal liability arises primarily in cases of involuntary manslaughter, where it is clear that the crime requires a higher degree of negligence than civil liability requires. The requisite degree of negligence proves difficult to define. The Model Penal Code offers the following explanation:

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11. The "we" includes Ron Staudt, Rosemary Shiels, and me. Ron Staudt was the originator of, and initial motivating force behind the design of the electronic casebooks and the notebook computer project.

A person acts negligently with respect to a material element of an offense when he should be aware of a substantial and unjustifiable risk that the material element exists or will result from his conduct. The risk must be of such a nature and degree that the actor's failure to perceive it, considering the nature and purpose of his conduct and the circumstances known to him, involves a gross deviation from the standard of care that a reasonable person would observe in the actor's situation.[12]
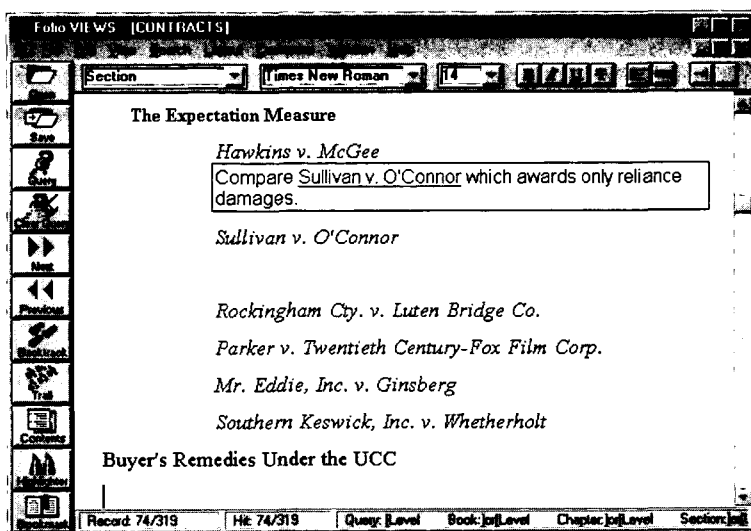
If one wants to learn what criminal negligence is, it is not much help to be told that it involves a "gross deviation." What degree of deviation qualifies as gross? This is tantamount to the question, What degree of negligence is criminal? The Model Penal Code does not offer a noncircular definition of criminal negligence. What it offers is a summary of the features relevant to the application of the concept. So how does one learn to recognize those features? By example—that is, by reading (or otherwise becoming acquainted with) cases in which the terms are used. One applies the various terms—"gross deviation," "reasonable person," "substantial and unjustifiable risk"—against a background of prior applications. A correct application must be relevantly like prior applications or a justifiable deviation from prior applications. Thus, to understand criminal negligence is to acquire the ability to identify relevant similarities and dissimilarities and to understand why they are relevant similarities and dissimilarities.

The leading idea behind the initial paradigm was that the computers through hypertext links could help students acquire this sort of ability and understanding. The idea was that students would map out relevant similarities and dissimilarities using annotated hypertext links. The annotated links would constitute a picture of relevant similarities and dissimilarities. The hope was that the process of constructing the annotated hypertext map would significantly aid students in acquiring the ability to identify and understand relevant similarities and dissimilarities. Moreover, it was not unreasonable to expect that, along the way, students would develop the ability to analyze independently while also making progress on the basic task of learning the relevant black letter law. To further aid in these endeavors, the Kent Computer Center added an automatic outlining feature to the basic Views program.[13] This feature consists of a specially constructed table of contents. At a click of the mouse button, the program searches the casebook and automatically collects all the

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12. MODEL PENAL CODE, § 2.02(2)(d) (1962).
13. This was Ronald Staudt's idea.

student's notes made within a particular case under the name of that case in the table of contents.[14]   For example, the above note would appear under *Hawkins v. McGee* in the table of contents.   Thus:

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┌─────────────────────────────────────────────────────────────────┐
│  Folio VIEWS  |CONTRACTS|                                    ▣▢▢ │
│                                                              ▣▢▢ │
│  ┌──┐ ┌─────────────┐ ┌───────────────┐ ┌──┐                     │
│  │▢▢│ │Section     ▾│ │Times New Roman▾│ │14▾│ ▢▢▢▢▢ ▢▢  ▢▢      │
│  ├──┤                                                             │
│  │▢▢│      The Expectation Measure                            ▲  │
│  │Save│                                                          │
│  ├──┤        Hawkins v. McGee                                    │
│  │▢▢│        ┌──────────────────────────────────────────┐       │
│  │Query│     │Compare Sullivan v. O'Connor which awards only reliance│
│  ├──┤        │damages.                                  │       │
│  │▢▢│        └──────────────────────────────────────────┘       │
│  ├──┤        Sullivan v. O'Connor                               │
│  │▶▶│                                                            │
│  ├──┤                                                            │
│  │◀◀│        Rockingham Cty. v. Luten Bridge Co.                │
│  │Previous│                                                      │
│  ├──┤        Parker v. Twentieth Century-Fox Film Corp.         │
│  │▢▢│                                                            │
│  ├──┤        Mr. Eddie, Inc. v. Ginsberg                        │
│  │▢▢│                                                            │
│  │Tab│       Southern Keswick, Inc. v. Whetherholt              │
│  ├──┤                                                            │
│  │▢▢│  Buyer's Remedies Under the UCC                           │
│  ├──┤ │                                                      ▼  │
│  │▢▢│                                                            │
│  │ Record: 74/319   │ Hit: 74/319  │ Query:Level  Book:ofLevel  Chapter:ofLevel  Section:off│
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The idea was that the outline would provide a systematic summary of all the annotated hypertext links.   The intention was that students would use the automatic outlining feature to prepare their outlines of the course.

The final part of the paradigm was that faculty would reinforce the student use of the electronic casebook by using the electronic casebook in class.   The instructor would use a notebook computer and a projector to display relevant passages overhead.   The thought was that first-year students typically have difficulty in focusing on the relevant language in cases they read and that it might be particularly effective to display crucial passages at the appropriate points in the discussion.   Doing so would focus student attention on the proper passages, and students could use the note-taking feature to make notes right at the point of the displayed passage, notes that would later appear in their outlines.   They could also create hypertext links to other cases and materials mentioned in the discussion.

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14.   The outlining feature also collects more than notes.   Views allows one to highlight passages, and the outlining feature will collect notes, notes and highlighted passages, or just highlighted passages.

This paradigm clearly meets two of the three conditions we imposed on any acceptable paradigm. First, there is adequate reason to think that instructors and students who conformed to the paradigm might increase the effectiveness with which they pursued the relevant pedagogical goals. Second, the paradigm is sufficiently well defined that it yields testable predictions that allow one to determine whether adherence to the paradigm increases the effectiveness with which relevant goals are pursued. The question is whether it meets the third condition: do students—after appropriate instruction and encouragement—on the whole to conform to the paradigm?

V. MEETING THE THIRD CONDITION

I should distinguish two ways in which students can conform to the paradigm. The first way is student conformity to the paradigm envisioned in preparing for class, taking notes, and studying for the final exam. The second way involves the instructor's in-class use of the notebook-computer-projector combination. Student conformity here would consist of a student response that indicated that this use of the computer was particularly effective in focusing student attention on crucial passages. Let us begin with this second aspect of conformity.

While only one instructor systematically used an overhead projector in every class, the student response from that class was overwhelmingly affirmative.[15] We surveyed the class twice concerning the use of the overhead projector—once midsemester, and once at the end of the semester. Here are the results of the midsemester survey:[16]

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15. I was the instructor. I was very pleased with the use of the projector. It allowed me to combine a fairly abstract and theoretical discussion with detailed attention to the language in the cases. The text presents the results of survey data that are not biased by my own very favorable reactions.

16. I conducted this survey myself to get a sense of whether and how the use of the projector was working.

Scale:

1 = very strongly disagree	4 = agree
2 = strongly disagree	5 = strongly agree
3 = disagree	6 = very strongly agree

Number responding: 89

A.	Displaying the text of cases in class using an overhead projector helps me understand the case.	4.62
B.	Displaying the text of cases makes me notice aspects of the case I would otherwise have overlooked.	4.81
C.	Displaying the text of cases helps me follow the reasoning in the case better than just having relevant passages read out of the printed textbook.	4.88
D.	I prefer having hypotheticals and other information displayed by overhead projector rather than having them handwritten on the blackboard.	4.52
E.	The use of an overhead projector makes class more interesting and helps hold my attention.	4.69
F.	I would like other courses to use overhead projectors.	4.79

Written student comments indicate only two complaints. First, sometimes the material did not remain projected for long enough, and second, where students did not have a copy already, they wanted copies (in print or electronic form) of what was projected.

The results were confirmed by the end of the semester questionnaire. Professor Peter Martin, of Cornell's Legal Information Institute, conducted this survey.[17] Martin's questionnaire

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17. Peter Martin observed and evaluated the notebook computer section periodically during the 1995-96 academic year. Peter W. Martin, *What Do Law Students With Laptops and Electronic Casebooks Do?—The Chicago-Kent Computer Section* (1995-96) (internet version Oct. 15, 1996) <http://www.law.cornell.edu/papers/kentrptf.htm> (hard copy on file with the *Seattle University Law Review*).

asked the students in the section about three distinct ways I had seen [the instructor] use the computer:

> 1) to draw attention to key passages of the materials, under discussion, in "real time," that is as they became the subject of discussion, not just as [the instructor] introduced them;
> 2) to put a problem or hypothetical before the class for discussion; and
> 3) to record, in outline form, the several responses to such a problem.[18]

Martin notes that, among the 68 students responding,

> [w]ell over 80% of the students responding valued all three to the level of checking them off as "particularly effective." Number 1 received that rating from 66 of 68 students filling out the question-naire. Over half the group were so thoroughly pleased they had no constructive criticism to offer on how to improve. Those that had advice stressed points bearing on visibility—larger font size, leaving particular passages on the screen a bit longer, use of a pointing device.[19]

There are two explanations of this favorable response. The first and obvious explanation is that, as we noted earlier, first-year students typically have difficulty in focusing on the relevant language in cases they read, and they find it particularly helpful to have crucial passages displayed at the appropriate points in the discussion. Similar points apply to displaying hypotheticals and recording responses. Students find it helpful to have a (suitably cleaned-up and reordered) response to a hypothetical recorded as it develops.[20] A second and less obvious explanation is that the use of the overhead projector may allow an instructor to more effectively model intellectual and professional virtues (such as responsibility, thoroughness, and tolerance). Law teachers (and lawyers generally) employ and display these virtues as they analyze and present a complex, continually changing field of informa-tion. The computer puts a very large amount of information at the finger tips (literally) of the instructor and can allow the instructor effectively to display how one should organize, analyze, and present information. It is certainly plausible that students respond affirmative-ly to this fact.

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18. *Id.* at 7.
19. *Id.*
20. There is an opportunity to use network connectivity here. If the instructor and the students are all connected to the network, the instructor can e-mail the hypothetical and recorded discussion to the students.

Now let us turn to the other aspect of the conformity to the paradigm, the purely student use—using the computer in the way the paradigm envisioned in preparing for class, taking notes, and studying for the final exam. Peter Martin's survey shows that here the majority of students did *not* conform to the paradigm.[21] In pre-class preparation, the majority did not construct hypertext maps of relevant similarities and dissimilarities. Indeed, they did not read the cases on the computer, so obviously they did not use Views to construct annotated hypertext links. In class, the majority took their notes using a word processor. One large group used a standard word processor such as WordPerfect or Word, and another large group used Views as its word processor (Views has sufficient word processing capacities for this purpose). This latter group (as a rule) did *not* take notes in the Views *casebook*; instead, they created their own Views file for their notes.[22] The majority referred to the *print* version of the casebook in class when the discussion focused on a particular case or statute. In preparing for the final, the majority did not make significant use of the built-in outlining feature. The majority did not, however, simply ignore Views. They used it as a storage and retrieval system. They used it to search for particular passages and to import passages verbatim into their notes or class preparation.[23]

Martin concludes:

> The capacity to search, link, and annotate, alone, however, seemed for most to be insufficient reason to choose the screen over a more familiar interface. Electronic casebooks in which the authorities cited in an assigned opinion or subsequent problem or note are a "point and click" away and interactive casebooks with built in tutorials, exercises, and problems are likely to exert a stronger pull

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21. Martin, *supra* note 17, at 4-5.

22. Those who used Views as a word processor did sometimes create hypertext links to materials in the casebook. This seemed to be the primary reason for choosing Views over standard word processors. *See id.* at 5.

23. Here is a somewhat more detailed summary of the results of Martin, *supra* note 17. The students responding to survey divided into three groups. The first group—approximately ten percent—more or less conformed to the intended paradigm. The second group—again approximately ten percent—rejected the paradigm more or less completely by not making a significant use of a computer to prepare for class, take notes in class, or prepare a final outline. The third group—the remaining approximately eighty percent—deviated from the paradigm, but did make significant use of the computer. They tended to read the print book in preparing for class and refer to the print book in class. However, they generally took notes in class using a word processor (a standard word processor or Views), prepared their final outlines on the computer, and most elected to take the final examination on the computer. This group typically used Views as a storage and retrieval system, calling up material when they wanted to export it into their notes or outline.

in competition with print. But electronic casebooks that simply place a digital copy of what is essentially flat book material in even a very sophisticated software environment will, by virtue of habit and experience, but probably more enduring reasons as well, be put aside by many for the print equivalent.[24]

As Martin himself remarks, this does not mean that the experiment was a failure.[25] Half of the students responding to Peter Martin's survey indicated that they would prefer a course that had materials in electronic form (in addition to print) over one that had only a book.[26] The use of the computer provides something that a significant number of the students find worthwhile.

But our concern here is specifically with the issue of conformity to the initial paradigm. Does Martin's survey show that the paradigm fails to meet our third condition, the requirement of student conformity? It is not clear. The third condition was that students—*after appropriate instruction and encouragement*—would on the whole conform to the paradigm. Their failure to do so could indicate that we did not give the students appropriate instruction and encouragement. This is very plausible, for the paradigm essentially left the students on their own to create relevant annotated hypertext links. The casebook itself provided no guidance, nor did in-class instruction provide guidance *specifically focused on creating annotated hypertext links.* (In class, students were, of course, exposed to the cross-references and comparisons that are an essential part of law teaching.)

It is doubtful that leaving students so much on their own is the right approach. To see why, recall the point made earlier about how one learns to recognize relevant similarities and dissimilarities. One learns by example—by reading cases that display the relevant distinctions. Learning by example is a slow and difficult process filled with many missteps—at least it is where one lacks knowledge of the law in general and knowledge of the particular area in question (e. g.,

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24. Martin, *supra* note 17, at 4-5.
25. *Id.*
26. Martin remarks:
Does all this mean that the electronic casebook was not valued or used? No. Recall that half the group viewed having an electronic version of course materials as important enough that, all things equal, they would prefer a section that had materials in that form (in addition to print) over one that had only a book. Those who did their course notes in Views, though not within the casebook, did so in part because of the capacity to link those notes to the book. Indeed, that is the principal advantage of using Views rather than WordPerfect or Word for daily notes. Notes on a particular case can be linked to the case or even a particular passage in it.
Martin, *supra* note 17, at 5.

criminal negligence, products liability, contract damages, and so on). This is the situation of first-year students; indeed, they are just beginning to learn what kind of thing it is they are supposed to learn. It is not reasonable to think that they will at the outset be able to construct useful annotated hypertext links with sufficient speed and accuracy to make constructing such links an effective method of study.

To make constructing such links an effective method of study, students need more guidance, more appropriate instruction and encouragement. There are two ways to provide this. First, the instructor can model the construction of annotated hypertext links in class using the projector. An instructor could display or construct on the spot (or guide students in the construction of) relevant annotated hypertext links. This instructor activity was not part of our initial paradigm, but it should have been. Second, we could design electronic casebooks to help students with the task of constructing hypertext links. The interactive capacities of the computer help here. One could include at various points in the casebook interactive tutorials that, through a series of questions and answers, guide students in the identification of relevant similarities and dissimilarities.[27] One could in this way make a *self*-instructional program. Law teachers will, of course, differ about *how* self-instructional they would like the program to be. Further experience with self-instructional casebooks will be necessary to resolve the issues here. But, hopefully, we can look forward to a second generation of more self-instructional casebooks that more fully employ the ways in which electronic books differ from print books.

However, as these second-generation books do not yet exist, I will conclude with a brief discussion of two first-generation casebooks currently available: Steven Burton, *Principles of Contract Law*[28] and Randy E. Barnett, *Contracts, Cases and Doctrine.*[29] These are both excellent casebooks. Each is informed by a different theoretical vision of contract law, and each casebook provides an excellent mix of classic and modern cases. I will, however, not focus on their content but on the computer presentation of that content. This discussion is essentially a brief review of the two different software formats—West's

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27. One might also consider exploiting the multimedia capacities of the computer to develop a variety of ways to present material. And, of course, one need not confine the tutorials to the focus on relevant similarities and dissimilarities. One can incorporate statements of the black letter law and one can have open-ended questions that encourage students to think and analyze in independent ways.

28. STEVEN J. BURTON, PRINCIPLES OF CONTRACT LAW (1995).

29. RANDY E. BARNETT, CONTRACTS, CASES AND DOCTRINE (1995).

Premise, which is the program for Burton's book, and Folio Views, which is the program for Barnett's. These are the two programs in which electronic casebooks are currently available. I will evaluate the presentation in terms of the extent to which they fulfill six criteria suggested by the foregoing discussion.

VI. TWO CONTRACTS CASEBOOKS

The criteria are as follows: (1) effectiveness in combining with a projector; (2) effectiveness of the search procedures; (3) effectiveness with which users can create hypertext links; (4) effectiveness with which users can take notes and make outlines; (5) effectiveness of the use made of interactive capacities of the computer; and (6) effectiveness of the use made of multimedia capacities.

A.   *A Premise Casebook: Steven Burton,* Principles of Contract Law

(1) *Effectiveness in combining with a projector.* The casebook projects clearly with a display that is not excessively cluttered. To project effectively in a large classroom, one must use around a twenty-four point font (this size makes text easily legible even from the back row of a one-hundred-seat classroom). It is important, then, that Premise allows one easily to change the font size of the text. One drawback, however, is that Premise does *not* allow one to change the font size of a portion of selected text. One must change the font size of the entire casebook. It would improve the projection capacities of Premise if one could select a section of text and change just its font size. Enlarging the font size of just the passage one wants to focus on sets that passage apart visually from the rest of the text. Keeping the rest of the text at a normal font size of twelve point or ten point keeps more of the text on the screen and makes it easier to search for what one wants.

Another feature that facilitates projection is a fast and convenient way to find the material one wants to project. This is especially important in order to respond quickly in class. Suppose, for example, a class discussion of contract damages unexpectedly makes *Sullivan v. O'Connor* relevant; one would like to quickly be able to project the case and focus on the relevant passages. The best way to do this would be to have an automatically searchable table of cases. One would simply type in the name of the case one was searching for, and the list of cases would automatically scroll down to that case (or the nearest match). Clicking on the case name would bring the case up on the computer

screen. Premise does not provide such a search feature, but it does provide other ways to search.

(2) *Effectiveness of search procedures.* There are two basic ways to search. There is a full text search feature. For example, if one searches for "expectation damages," the program will locate every occurrence of that phrase in the casebook; the search produces a list of occurrences and by clicking on the items in the list, one can display the relevant text. One can also use the table of contents to search for items in just the way one uses the table of contents of a print book. The only difference is that clicking on items in the electronic casebook table of contents takes you to that item.

One thing that is lacking is an index. It would certainly be convenient to have an automatically searchable index which would work just like the table of cases we envisioned earlier. One would simply type in the item one was searching for (e.g., "expectation damages") and the index would automatically scroll down to that item (or the nearest match). One would find a list of subtopics associated with pages on which those topics were discussed, and clicking on the page number would bring that page up on the computer screen.

(3) *Effectiveness with which users can create hypertext links.* While Premise has built-in hypertext links, users cannot create hypertext links. This is a drawback—*if* one's paradigm of student use includes the creation of hypertext links.

(4) *Effectiveness with which users can take notes and make outlines.* Students can take notes at any point in a case using a pop-up window. Students can cut and paste material into a word processor. When they do so, the program will (if the user so desires) automatically include a reference to the page on which the text occurs in the electronic casebook.

(5) *Effectiveness of the use made of interactive capacities of the computer.* The casebook makes no use of the interactive capacities of the computer.

(6) *Effectiveness of the use made of multimedia capacities.* The casebook makes no use of the multimedia capacities of the computer.

Overall, Burton's casebook is a well-designed electronic casebook that lends itself easily to in-class use with a projector.

B. *A Views Casebook: Randy Barnett*, Contracts, Cases and Doctrines

(1) *Effectiveness in combining with a projector.* Like Burton's casebook, Barnett's projects clearly with a display that is not excessive-

ly cluttered. Like Premise, Views lacks an automatically searchable table of cases. However, unlike Premise, Views allows one to change the font size *either* of the casebook as a whole, *or* of just a selected passage. As noted earlier, enlarging the font size of just a selected passage sets that passage apart from the rest of the text, keeps more text on the screen, and thus makes it easier to search for what one wants. This makes Views somewhat better for projection purposes.

(2) *Effectiveness of search procedures.* Views provides for full text search in a way that is quite similar to the full text search of Premise. One can also use the table of contents to search for items. Like Premise, Views does not incorporate an index.

(3) *Effectiveness with which users can create hypertext links.* Views, unlike Premise, allows users to create hypertext links. From a technical point of view, this is the major difference between the programs. User-created hypertext links are the one major feature Views has that Premise lacks. To the extent that one thinks that such user-created links serve an important pedagogical purpose, this is an important difference between the programs.

(4) *Effectiveness with which users can take notes and make outlines.* Barnett's casebook includes the note-taking and outlining features of Views discussed earlier.

(5) *Effectiveness of the use made of interactive capacities of the computer.* The casebook makes no use of the interactive capacities of the computer.

(6) *Effectiveness of the use made of multimedia capacities.* The casebook makes no use of the multimedia capacities of the computer.

Overall, Barnett's casebook is a well-designed electronic casebook that instructors will find easy to use in class with a projector. Further experience will reveal whether the user-created hypertext links the program allows play an important pedagogical role.

VII. THE NEXT STEP

Kent will continue to study its notebook computer section. The next step is to have a specialist in learning theory study the pros and cons of electronic teaching. Our results so far support some hope that the computer will prove a compliant tool that improves law teaching.