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The Use and Effectiveness of Various Learning Materials in an Evidence Class

Stephen J. Shapiro

Like many law teachers, I take reasonable care in selecting the outside materials I require my students to use (or recommend to them) in preparing for class and studying for the exam. I base my choice on my own notions of what would be most helpful to them in learning the material, preparing for class, succeeding on the exam, and preparing to be lawyers. I carefully weigh such matters as length of assignment, interest to the students, and active versus passive learning.

My assessment, however, is based almost entirely on my own notions of what the students will find most interesting and most beneficial. I will, of course, occasionally discuss course materials with my colleagues over lunch, or even more occasionally get an anecdotal report from a student. But I had never really examined the extent of use and the effectiveness of the materials I had been assigning.

The closest I had ever come to doing so was in reviewing the evaluation forms filled out anonymously by all students at the end of the semester. One of the twelve questions on the school's standard form asks students their opinion of "the assigned texts, outside reading and exercises" in the course. I must admit, however, that my greater interest in the other eleven questions, which deal more personally with *my* performance, and the paucity of information supplied by the students (on most questions and particularly on this one) have conspired to make this exercise less than helpful in evaluating the teaching materials.

In the spring of 1994 I decided to conduct a more systematic review of the teaching materials I assigned in my Evidence class. Mainly I wanted to know to what extent the students were completing assignments in each of the materials; why they were or were not completing the assignments; and to what extent, if any, did completing the assignments improve their performance.

The results of the study gave me some interesting answers. More important, conducting the study and discovering that very few similar studies have been

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published in the law school context have convinced me that we law professors need to do more systematic research into student use of the materials we assign and their effectiveness.¹

Background

I have been teaching law full time for seventeen years and have taught the basic three-credit required course in Evidence for the last eleven. I have used the same text in all eleven years: *Cases and Materials on Evidence*, by John Kaplan, Jon R. Waltz, and Roger C. Park.²

I have continued to use it partly out of familiarity, but also because there are significant aspects of the book that I like. First and foremost is that, unlike most evidence texts, it deals with hearsay near the beginning, rather than at the end of the course.³ Second, I mostly like its selection of cases, and appreciate the limited but judicious updating of cases throughout the last eleven years. I also like the book's inclusion of the Federal Rules of Evidence, along with accompanying materials.

But there are some problems with the book. I find the explanatory material skimpy, disjointed, and difficult to comprehend. I have always felt that it would be hard to learn evidence with nothing but this book. It gives no systematic explanation of the basics. Almost everything must be gleaned from the cases themselves, some of which, of course, are wrongly decided or at least contradictory to others. And I don't particularly like the problems that are included; I don't generally use them in class, preferring my own hypotheticals.

I have dealt with each of these perceived deficiencies in a different way. Starting about six years ago, I developed a syllabus that, for each assignment, incorporates readings in the leading hornbook, *McCormick on Evidence*,⁴ in place of the textual material in the casebook. I tell the students to do the readings in the hornbook first, then read the cases in the casebook. The first several years I listed the hornbook as recommended—rather than required—reading (both on the list in the bookstore and on my syllabus). I did make sure that there were sufficient copies in the bookstore and on reserve in the library to satisfy student demand. And at the first class session I always encouraged students to do the readings in the hornbook regularly. I hoped that the

1. There are two older studies of the effectiveness of computer-assisted legal education: Peter B. Maggs & Thomas D. Morgan, *Computer-Based Legal Education at the University of Illinois: A Report of Two Years' Experience*, 27 *J. Legal Educ.* 138 (1975); Harry G. Henn & Robert C. Platt, *Computer-Assisted Law Instruction: Clinical Education's Bionic Sibling*, 28 *J. Legal Educ.* 423 (1977). I could find no studies on the use and effectiveness of casebooks or textbooks.
2. I was using the seventh edition (Westbury, N.Y., 1992) when I conducted this study. The eighth edition (Westbury, N.Y., 1995), by Waltz and Park, was published after the study was completed.
3. I prefer studying hearsay early, because hearsay issues pervade many cases and problems studied in other topics. I believe that it would be difficult for the students to deal with these cases and problems without an understanding of hearsay. Also, hearsay is the most difficult concept in the course. By studying it earlier, I can reinforce its learning later in the course as the hearsay issues pop up in other topics.
4. 4th ed., ed. John W. Strong (St. Paul, 1992).

hornbook would give more students a grasp of the basic concepts before they came to class, so that I could move more quickly to more interesting, more difficult material.

When, after a few years, this benefit did not materialize, I asked (with a show of hands) how many students were doing the readings in the hornbook. This informal poll suggested that less than half were doing them. Convinced of the benefit of the hornbook, and hoping to increase student use of it, I listed both the book and the readings as required in the following year. They remained required for another two years, up until the time of my empirical study.

I began assigning some of the exercises produced by the Center for Computer Assisted Legal Instruction; Roger Park of the University of Minnesota has developed a series of nine CALI exercises for evidence students. Each exercise presents a series of questions and responds to the student's answers. Each of the basic exercises takes about an hour, although the student can request additional questions at the end.

At first, as with the hornbook, I listed the computer exercises as recommended. But over the last few years, as the exercises improved and as the number of students with easy access to computers increased, I also made them—or at least three of them—required: The Concept of Hearsay, The Hearsay Rule and Its Exceptions, and A Survey of Evidence. Three more remained optional: Character Evidence Under the Federal Rules, Expert and Opinion Evidence, and Authentication and Best Evidence. Except for the Survey of Evidence, which I put at the end of the syllabus and recommended as a study aid for the exam, I listed the exercises in the syllabus immediately after the readings on a topic, and I encouraged the students to do the exercises at those points rather than the end of the semester. Although I listed some exercises as required, I did not ask for any proof that they had been completed. Another informal poll conducted in class led me to believe that most of the students had completed at least some of the exercises and that most students liked them, although they found them difficult.

The Method of the Study

I gave out a short survey to the students at the end of the last class session of the spring 1994 semester. Since I was going to correlate students' survey responses with their exam grades, I could not make the survey anonymous; I asked the students to supply either their examination identification number or their name at the top of the survey. To encourage honest answers, I promised the students that I would not even open the surveys until I had graded the exams and reported the grades to the registrar. I had a student in the class collect the surveys and deliver them to the dean's office, where they were held with the students' regular course evaluations until I had turned in my grades. I also put a copy of the survey on the last page of the examination, for students who had missed the last day of class.

The survey consisted of six questions. For each of the course materials (hornbook, casebook, and CALI exercises) there were two questions. The first

surveyed the extent of use by the students. For the hornbook and the casebook the possible responses were "never or almost never," "occasionally," "usually," and "always or almost always." Since there were far fewer CALI assignments, this question was somewhat different. I asked the students to circle any of the three required exercises that they had completed, and to circle an additional letter if they had done "one or more of the optional exercises." The second question for each of the materials asked whether the student found it "not helpful at all," "not very helpful," "somewhat helpful," or "very helpful."

The second page of the survey asked students to comment briefly about each of the materials.

Results

Extent of Student Use

Of the 73 students in the class, 68 responded to the survey. Table 1 shows student responses as to the extent of use of the hornbook and the casebook. A z-score test for the difference between proportions supported the observation that student use of the casebook was significantly greater than the hornbook.

Table 1
Students' use of the hornbook and the casebook (percentages)

<i>Extent of use</i>	<i>Hornbook</i>	<i>Casebook</i>
Never	29.4	5.9
Occasionally	38.2	10.3
Usually	26.5	36.8
Always	5.9	47.1

$Z > 5.8; p < .001$

Most of the students reported completing the assignments in the casebook (83.9 percent usually or always, only 16.2 percent never or occasionally), while many fewer reported doing the readings in the hornbook (only 32.4 percent usually or always, and 67.6 percent never or occasionally).

Table 2 shows student usage of the CALI exercises, which was also quite high.

Table 2
Students' use of the CALI exercises (percentages)

No exercises	6.0
1 required exercise	7.5
2 required exercises	11.9
3 required exercises	22.4
All required exercises + at least 1 optional	52.2

As the table shows, 74.6 percent of the students reported doing at least all three of the required exercises, and 52.2 percent reported doing at least one

optional exercise in addition to the required ones. Because of the difference in the form of the questions, the results on this question could not be statistically compared to the results for the hornbook and the casebook. But a fair characterization of the results is that most of the students (about three-quarters) made substantial use of the casebook and about the same number made substantial use of the CALI exercises, while many fewer (about one-third) made substantial use of the hornbook.

Perceived Helpfulness to the Students

Student response as to whether each of the materials was helpful was plotted on a 4-point scale ranging from “not helpful at all” (1) to “very helpful” (4). The hornbook scored the lowest at 2.65; the casebook was next at 3.12; and the CALI exercises were highest at 3.53. I conducted an analysis of variance ($F = 17.5; p < .001$), and I examined the differences between the sets of materials by *t*-tests to compare the means: the CALI exercises were reported as more helpful than the casebook, which was reported as more helpful than the hornbook. Table 3 shows the results of this comparison.

Table 3
Reported helpfulness of outside materials (percentages)

<i>Degree of helpfulness</i>	<i>Hornbook</i>	<i>Casebook</i>	<i>CALI</i>
1 Not helpful at all	17.6	3.5	0
2 Not very helpful	17.6	5.2	2.0
3 Somewhat helpful	47.0	66.7	42.9
4 Very helpful	17.6	24.6	55.1
Mean value	2.65	3.12	3.53

t (Hornbook v. Casebook) = 2.94; $p < .004$

t (Hornbook v. CALI) = 5.62; $p < .001$

t (Casebook v. CALI) = 3.50; $p < .001$

Effect on Student Performance

The measure of student performance was the final examination—a three-hour, open-book exam with 25 multiple-choice questions, worth two points each, and two one-hour essays, worth 25 points each. The scores ranged from 36 to 90.

There is normally a fairly high correlation between how well students do on any one exam and how well they do in their courses overall (i.e., their grade point average). This was the case with my Evidence exam: the correlation was .67 ($n = 73; p < .001$). That is, a student who did well on my exam was likely to have a high GPA, and a student who scored low was likely to have a low GPA. I could not do a straight correlation between use of the outside sources and performance on my exam, because it would have been impossible to tell whether using the material improved performance; perhaps the better students were simply more likely to use the material.

To attempt to control for the level of prior performance, I employed a multiple-regression analysis to determine the relation between use of the

outside sources and performance on my exam. In this analysis, the student's score on the exam was the dependent variable. The independent variables were prior GPA, the extent of use of CALI exercises, the use of the hornbook, and the use of the casebook; their entry into the equation was controlled by the computer. The analysis showed that when the use of CALI was added to prior GPA, the correlation with exam performance increased. The multiple correlation coefficient squared (R^2) increased from .439 to .472 (an increase of just over 3 percentage points in the explanatory power of the model).

This supported the conclusion that the use of the CALI exercises had a small but positive (and statistically significant: $p < .05$) correlation with students' performance on the examination. The addition of the hornbook and the casebook to the equation showed no significant improvement. See Table 4 for the results of this multiple regression analysis.

Table 4
Use of materials compared to exam performance
Results of stepwise multiple regression

<i>Variable</i>	<i>B*</i>	<i>SE</i>	<i>R²</i>	<i>t</i>	<i>p</i>
Prior GPA	25.28	8.34	.439	7.47	<.001
CALI	1.65	8.15	.472	2.00	.049
Hornbook	1.12	8.22	.481	.94	.349
Casebook	-.70	8.18	.480	-.58	.563

**B* is the regression coefficient.

Model: *d.f.* = 4 *S.S.* = 3877.47 *M.S.* = 969.37 *F* = 14.35 ($p = .001$) $R^2 = .481$

Residual: *d.f.* = 62 *S.S.* = 4189.45 *M.S.* = 67.57

Conclusions

Although all three outside materials were listed as required, the students chose to make significantly less use of one than of the others. This is worth noting, because I suspect that when teachers assign reading as required, we expect that most of the students will do it. Occasionally we can recognize that a student has not done the reading if we call on someone who is not prepared to discuss the case. But there is no easy way to determine whether students are doing assigned background reading in hornbooks, textbooks, or law review articles. These results show that sometimes they are not.

Students seemed to make more use of the materials they found most helpful. They found the casebook and the CALI exercises helpful, and they used them; many did not find the hornbook helpful and did not use it. A number of students reported trying the hornbook at the beginning of the semester, and then deciding not to continue using it when they did not find it helpful, or when they did not feel that the extra time spent was useful enough.

In the following semester, when I taught the course again, I listed the hornbook as recommended rather than required reading, although I still included detailed assignments in the hornbook on the syllabus, and still encouraged the students to use it. I gave the students in this class a similar

survey, asking them how much they used the book. Table 5 compares the use of the hornbook when required to its use when recommended. A chi-square analysis showed no difference in use. Although use of the hornbook seemed to go down slightly, especially in the percentage who “usually” used the text, there was no statistically significant difference between the two semesters.

Table 5
Hornbook required vs. hornbook recommended (percentages)

<i>Extent of use</i>	<i>Required</i>	<i>Recommended</i>
Never	29.4	36.5
Occasionally	38.2	46.0
Usually	26.5	9.5
Always	5.8	7.9

$\chi^2 = .46$; $p = .50$; $d.f. = 3$

These results, although by no means conclusive, show that student use may be more affected by how helpful the students find the materials than by whether the materials are required. This is consistent with some students' saying that they had started the semester doing the readings in the hornbook, but had stopped when they did not find the hornbook very helpful.

This raises the question, then, of whether it could be useful to require (as opposed to recommending) an outside source just to get the students to *try* the material and discover for themselves whether it is helpful. The comparison of hornbook usage in the two semesters suggests not. The number of students who indicated that they never, or hardly ever, used the hornbook did not increase significantly when it was downgraded from required to recommended.

Another interesting follow-up would have been to downgrade the CALI exercises to recommended status. Would the students continue to use these exercises, which they liked and felt were helpful, if they were not required? I decided not to do this because the Evidence teacher in me (as opposed to the researcher) didn't want to spoil a good thing that appeared to be working.

Among those students who did not find the hornbook helpful, the most common complaints were that the readings were too long (eight responses), were too confusing (nine), and provided too much background and history (seven). Many students seemed to be looking for an outside source that would provide a bottom line, or the black letter law, rather than real enrichment.

Because less than a third of the class was using the hornbook more than occasionally, I changed it from required to recommended. I didn't feel I could justify having all or most of the students buy the book when so few were actually reading it. This was probably the right decision, since, apparently, use of the book did not significantly decrease as a result.

I was not surprised that most of the students (83.9%) responded that they had usually or always done the readings in the casebook. Because I call on students randomly in class and often expect them to discuss the specifics of the cases, they risk embarrassment if they have not read the casebook. I was

surprised, however, at the large number of students who found the casebook either somewhat helpful (66.6%) or very helpful (17.5%). I had been assuming that most students viewed most casebooks as a necessary evil, rather than a helpful tool.⁵ There was more praise for the cases themselves—which the students found helpful, either alone or in combination with class discussion, for extracting and understanding the rules—than there was for the textual material. This accords with my own evaluation of the book. The most common complaint was the inclusion of so many cases that were “wrongly” decided.

Most of the students (74.6%) completed all three of the required CALI exercises, and about half (52.2%) did at least one of the three optional exercises. All but one student found them either somewhat or very helpful. Some students made comments like “enjoyed them,” “loved them,” and “found them addicting.” These are words that one doesn’t often hear law students use, at least about their studies. There were very few criticisms of the exercises. Six students, although they generally liked the exercises, complained that they were too difficult, and three indicated that they were discouraged by their low scores.

Besides the fact that they enjoyed doing the exercises, I believe another key to student use of the exercises is ease of access. Whereas two years ago the University of Baltimore had a single computer lab with six computers, we now have two labs which together have sixteen. The overwhelming majority of students also have their own computers, and if the students supply blank disks, our library will provide copies of the exercises that they can take home. I encourage students to work in pairs, and I ask the more computer-literate students to help their less experienced classmates.

One interesting result of the study was that, of all three materials, only the CALI exercises seemed to have an effect on student performance. There was a moderate positive correlation between number of exercises done and performance. This result is consistent with studies in other disciplines showing that computer-assisted learning exercises, when combined with classroom teaching, can result in a small but measurable improvement in student performance.⁶ What was surprising, however, was that even small differences in the number of exercises that the students completed seemed to produce this effect.

5. Of course, one reason they might have found the casebook more helpful than the hornbook was that the casebook was more useful in preparing them to discuss the cases in class and avoid embarrassment. But my approach in class is by no means entirely, or even mainly, case-oriented. I use a fair number of hypotheticals and problems of my own making, and intuitively I would have thought the hornbook more helpful to the students in preparing to answer these. Perhaps I should have worded my survey a little more precisely and asked the students to rate the materials for their helpfulness “in understanding the subject matter.”
6. [I]t is only when the results of many studies are combined that CAI shows a small but significant effect. Using a statistical technique called “meta-analysis,” [one group of researchers] found that across ninety-nine studies the examination scores of students in CAI classes are significantly higher than the scores of those in conventional classes—by about one-quarter standard deviation, or by a “small” effect size (ES) of .26.

Paul F. Teich, *How Effective Is Computer-Assisted Instruction? An Evaluation for Legal Educators*, 41 *J. Legal Educ.* 489, 493 (1991) (footnotes omitted).

Had I been using a proper experimental design, I would have divided the class in half, at random, with one group doing none of the exercises and the other group required to do all of them. But this was a class, first and foremost, and not an experiment. Since most of the students did at least three of the exercises, I was mainly measuring differences in whether they did any of the additional, optional exercises. And yet even these small differences resulted in a positive effect on performance.

The results of the study have, of course, convinced me that I should continue to assign the CALI exercises. When you find a learning source that most students seem to use and find helpful (even like), and which seems to improve performance, it makes sense to continue to use it. I did, however, make some changes in the way I use the exercises, based on the results of the study.

Student comments confirmed what I had suspected: that the exercise *The Concept of Hearsay*, which I had them doing first (after two weeks of class and two class discussions of hearsay) was very difficult for them. I have replaced it with *Hearsay from Square One*, a simpler exercise covering the same concepts. I suggested that they use the harder exercise as a review for the exam. I have also replaced some of the hypotheticals that I use in class to teach hearsay with factual situations closer to those used in the CALI exercise, both to help students prepare for the exercises and to create closer links between their classroom and computer learning.