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# Computers at the Core of Legal Education: Experiments at IIT Chicago-Kent College of Law

Ronald W. Staudt

## I. Introduction—The Need for Education in Use of Computers in Law School

The IIT Chicago-Kent College of Law is a part of a technological institute, with ready access to computer scientists and electrical engineers who are interested in using technology to improve the productivity of the problem-solving professions. The IIT Center for Law and Computers, established in 1983, seeks to monopolize on this resource. During its brief life, the center has built and equipped three computer laboratories for students, formed programming teams to write new software for lawyers and law students, and organized CLE courses for lawyers. IBM has supported some of this activity as part of the IIT/IBM Joint Study.<sup>1</sup>

Ronald W. Staudt is Associate Professor of Law, IIT Chicago-Kent College of Law, and Director of the IIT Center for Law and Computers. He is also chairman-elect of the Section of Computers and Law of the Association of American Law Schools (AALS), and a member of the Board of Directors of the Center for Computer Assisted Legal Instruction (CALI). The author wishes to acknowledge the assistance of Bernard J. Farber, Instructor of Law and Computer Research Attorney, IIT Chicago-Kent College of Law, in the preparation of this article.

1. The IIT Center for Law and Computers was established at IIT Chicago-Kent College of Law in 1983 as a center for research and teaching in the integration of computers into law practice and legal education. The center is staffed by Ronald W. Staudt, Association Professor of Law and Director of Computer Development; James A. Sprowl, Associate Professor of Law, a nationally known expert in the area of computers and the law; Sandra Lancaster, Legal Writing/Computer Fellow; Bernard Farber, Instructor of Law and Computer Research Attorney; and three administrators. The center's facilities consist of a twenty-PC classroom/laboratory and a ten-PC laboratory, with a new classroom/laboratory of thirty-five PCs completed in fall 1985. These represent the most extensive student computer facilities in a law school in the country.

In 1984, the center entered into a joint study agreement with IBM Corporation. Under this agreement, IBM has supplied the law school with computer equipment to be used in the evaluation of the effect of computer use on legal education. A team of programmers from IIT's computer science department, under the direction of James Sprowl, is designing and writing software aimed specifically at filling the writing, research, and practice needs of law students and lawyers. This software includes a case briefing/course outlining system, a communications program, a document assembly and interviewing system, and a microcomputer version of the IBM data base program STAIRS. The communications program and a menuing program have been completed; testing of the prototype of the Micro STAIRS, briefing/outlining, and document assembly/interviewing systems began in the fall of 1985. A more detailed description of this software and the concepts behind it are contained in Sprowl's article "Developing Computerized Practice Aids for Tomorrow's Law Office," published in the April 27, 1985, Law Day Edition of the *Chicago Daily Law*

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The center's operating premise is that computers can and will work fundamental changes on education and law, that they may change even the core of our discipline. It is experimenting with the tools needed to educate law students and lawyers to meet the professional demands of such change.<sup>2</sup>

The possibility that the core of our discipline might be changed by technology is startling. How could any technology alter the core of lawyering—a discipline grounded in history and steeped in tradition, conservative, slow to change? Yet lawyers can be heard predicting that computers will produce major changes in law practice: "Within a short time, many lawyers will be using computers as comfortably as the ubiquitous yellow pad."<sup>3</sup> "Though many lawyers may deplore this development, systematization will change the entire nature of [law] practice. The trend is obvious [and] relentless as technological innovations continue to engulf us at an accelerating rate during the 1980s."<sup>4</sup> "Office automation will change the way lawyers practice law. . . . It's the key to the future well-being of [law] firms."<sup>5</sup>

Will such changes in practice necessarily affect the core of our discipline—legal education? If the "core" includes only analytical skills and fundamental law concepts, the answer is not clear. Some entertain the notion that computers may alter the problem-solving technique we call legal analysis; others find the notion preposterous.

With a broader definition of the core mission of legal education, that debate becomes less crucial. The ABA Task Force on Competency<sup>6</sup> defined this broader mission: "Lawyer competence in most if not all areas of law practice demands a wide range of fundamental skills. Law schools should provide instruction in those fundamental skills critical to lawyer competency." Given this view, as computer skills become critical to lawyer competency, they become central to legal education.

Let us examine, for a moment, some of the fundamental lawyer skills identified by the Task Force:

1. Lawyers must be able to perform legal research:

Increasingly WESTLAW and LEXIS, Autocite and Instacite are becoming necessities in the law office rather than quaint toys.

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*Bulletin.* The IIT Center for Law and Computers publishes a monthly newsletter *Brief Byte*, which describes its ongoing research and experience. Copies may be obtained from Bernard Farber, Editor, 77 S. Wacker Drive, Chicago, IL 60606.

2. For this conceptualization, I am indebted to Steve Gilbert, Director of the Educom Computer Literacy Project. He has studied computerization of education in American universities and identified three phases: (1) use of computers to aid administration of education—i.e., registration systems and word processing, (2) use of computers to improve the teaching of the traditional subject matter of the university, and (3) an examination of the changes in the core of the discipline caused by the advance of computer technology.
3. Dan Remer in *LIST Magazine*, January 1984.
4. Guy Bennet in the March-April 1984 issue of *Legal Economics*.
5. Sam DeLuca in the cover article of the July 1984 *ABA Journal*.
6. Report and Recommendations of the Task Force on Lawyer Competency: The Role of the Law Schools. ABA Section of Legal Education and Admissions to the Bar (1979).

2. Lawyers collect and sort facts:

Computer-assisted factual research provides massive amounts of relevant information at the fingertips of the lawyer and law librarians.

3. Lawyers handle lawsuits and appeals:

Litigation management systems—vast electronic file cabinets—can locate documents, testimony from depositions, and computerized trial transcripts. These systems are now essential aids to lawyers in large lawsuits and frequently employed by lawyers in smaller cases.

4. Lawyers must write effectively:

Word-processing systems, legal expert systems and computer-aided practice systems now speed document production. In conjunction with computer-assisted research in the same computer work station, these tools will revolutionize legal writing methods.

5. Lawyers analyze legal problems:

Spreadsheets and modeling programs are being employed by lawyers to plan and analyze the consequences of various legal alternatives. Such legal analysis programs as those developed by ABA Executive Director Thomas Gonzer and John Soma of the University of Denver improve the negotiation process by helping quantitatively to analyze the settlement value of lawsuits.

6. Lawyers must organize and manage legal work:<sup>7</sup>

Systems for computer accounting, time and billing, docketing, calendaring are being written and marketed to lawyers to improve their ability to operate the business of the profession. A whole new series of computer products are being developed to enhance the productivity of the lawyer, for example: outlining and work-product filing systems, decision support programs, communication programs that transmit information instantly across the country and from office to office, and so on.

The conclusion is inescapable—if law schools must teach the fundamental skills critical to lawyer competence, then law schools must prepare their students for work in an automated profession.

## II. Resource Questions Raised by the Need to Teach Law Students About Computers

Law schools and their students face a short-term need that will soon be solved by others. Today, most law students are unfamiliar with computers. Those few who do have some computer knowledge tend to be those with technical, scientific, or engineering backgrounds. But courses in computer literacy and use are sweeping grade schools, high schools and undergraduate schools. Engineering schools are moving toward universal microcomputer access. Within five years or so, law students will matriculate as knowledgeable computer users. Law schools must then be ready to teach special legal applications of the technology.

Serious resource questions are posed by both short- and long-term needs.

Personnel: Who will be the teachers? Who will teach the present teachers?

Equipment: What equipment should the school furnish? What equipment can it expect students to buy?

7. *Id.* at 9, 10.

Teaching materials: What books and exercises will meet these novel educational needs? How will they be distributed?

Finances: What will be the cost of all this? Who pays for it?

Troubling though these issues may be, an even more difficult resource problem is posed by the density of the law school curriculum. The quantity of substantive law is exploding. The three-year law curriculum is filled with dozens of courses that did not exist twenty years ago. Law schools are considering tracking and specialization during law school to allow students to become proficient in narrower areas of expertise. The Chief Justice and the Task Force on Lawyer Competency have called upon law schools to teach the fundamental skills critical to lawyer competence so that law school graduates can negotiate, interview clients, and handle a lawsuit. How can the curriculum now accommodate essential education in technology skills?

Computers themselves may offer some relief to problems of curricular overload. First, computer-assisted instruction can begin to allow cost-effective, individual skills teaching as well as support for substantive courses. Charles Kelso's work with Clark Kelso at McGeorge School of Law is an example of this kind of innovation.<sup>8</sup> Lynn LoPucki's debtor/creditor game and the interactive video disk evidence exercises of Roger Kirst at University of Nebraska Law School and Frank Bress at NYU Law School are exciting new computer teaching applications. These efforts are just the first attempts to use new learning systems to increase the efficiency of individualized instruction in law school.

In addition, computers may improve the efficiency of the consumers of legal education. Computers may enable our students to work more effectively. This is the focus of the work of the IIT Center for Law and Computers. It has two important objectives:

First, to enhance law students' ability to learn the law and the analytical skills at the undisputed core of our discipline through appropriate hardware and software support.

Second, to incorporate computer use into the process in which students first develop their professional identity, to make an understanding of that technology part of their professional problem-solving technique. We hope that all graduates will be able to learn to use the tools of the most modern, efficient automated law office.

In 1983, the IIT Center for Law and Computers established a new microcomputer laboratory and conducted a preliminary pilot test of the use of microcomputers in the first semester of law school. A year later in fall 1984, a second student microlab was furnished and we organized a second experimental program to teach first-year law students to use microcomputers. A third laboratory has been built for the fall of 1985 to support a

8. Developing such lessons will not be an easy task. Russell Burris has spent decades working in this very area. With Donald Trautman from Harvard, he has developed an effective authoring support organization in the Center for Computer Assisted Legal Instruction. Law professors who are interested in writing computer lessons should contact Burris at CICALI.

third study. The remainder of this article describes these successive experiments.

### III. Planning and Equipping a Microcomputer Laboratory

It was no small matter to decide which computers to purchase for a law computer lab in the summer of 1983.

Several criteria were the basis of that choice. In addition to aiding productivity, the computers had to run the CCALI computer-assisted lessons. At the time (summer 1983) the CCALI lessons required that the computer run the UCSD "P System" operating system. This limitation has since changed and the CCALI lessons run under the popular MS-DOS operating system.<sup>9</sup>

In the volatile computer manufacturing area, we wanted a stable company with a commitment to support the legal marketplace. The microcomputer also had to have the capacity to handle James Sprowl's research.<sup>10</sup>

After a review of available equipment, the Center chose the IBM PC as the student workstation. It could run the CCALI lessons under the UCSD P System as well as more and more law related and business related software packages.

In fall 1983 we ordered twenty-one IBM PCs to equip our laboratory for student use, with monochrome monitors and with additional memory acquired from a third party vendor.<sup>11</sup> This equipment was located in a new

9. An operating system can best be thought of as the "traffic manager" of the microcomputer. It is a computer program, or series of instructions, which tells the microcomputer how to store and retrieve files on a disk, how to display information on a monitor, how to send data to a peripheral device (such as a printer or modem). MS-DOS is a trademark of Microsoft, Inc.
10. The special needs of lawyers for document assembly had been the research focus of James Sprowl. At the American Bar Foundation he had investigated the use of computers to aid in the delivery of legal services. During the mid-1970s he wrote a new computer language and processor which he called the ABF processor. This software ran on large mainframe computers. Between 1978 and 1980, we tested use of the software in the clinic at the IIT Chicago-Kent Law School. For a description of this experience, see James A. Sprowl & Ronald W. Staudt, *Computerizing Client Services in the Law School Teaching Clinic: An Experiment in Law Office Automation*, 1981 *Am. B. Found. Research J.* 699 (No. 3) and Ronald W. Staudt & James A. Sprowl, *Automating Administrative Systems in a Law School Teaching Clinic: Designing a Computer System to Process Case and Time Data for Management and Research*, 1981 *Am. B. Found. Research J.* 1111 (No. 4). Sprowl now proposed to move this system to microcomputers to make it more accessible to attorneys. This tool would enable lawyers to automate their own form drawer by developing "practice systems" each time they drafted a client document. These systems would automatically generate a client interview that would prompt the lawyer or the lawyer's assistant for the client-specific information needed to assemble a new version of the document.
11. Our first student project was to be in word processing. Even the CCALI exercises were solely text. To insure that all these exercises could be translated into operating systems for many different computers, Burris was forced to exclude graphics from the supported teaching techniques. In 1985 this deficiency was partially addressed when the authoring language added significant support for a videodisk interface.

Within the year, we upgraded all these machines to 512,000 bytes of memory to support the memory demands of the large integrated software products that began appearing on the market.

room on a remodeled floor of the law school. The computers were installed on long tables so that each of four machines shared one printer, one modem, and one telephone line.

#### IV. Our First Experiment: The January 1984 Pilot Study

The law school admits sixty to seventy students each January. This smaller mid-year class offered us the opportunity to test our computer laboratory and begin to gather information on the attitudes of law students to computers. Since most law students do not have technological backgrounds, we expected some attitudinal barriers.

Essentially, unlimited microcomputer resources were furnished to this group of first-year law students. To encourage use of the resources, extra classes in microcomputers were added to the legal writing sequence. Software and hardware access was free.

During orientation for the January mid-year group, the director of the legal writing program explained that their class would be the first to take part in a new legal writing/computer program. The key requirement of the new program was that all legal writing assignments had to be prepared using the computers. This approach aimed at taking advantage of the easy revision offered by the computer in the numerous rewrites required.<sup>12</sup>

During the first three weeks of the semester, one of the legal writing instructors who was familiar with computers, taught the students word processing using WordStar<sup>13</sup> and the rudimentary DOS commands needed to start up the computers and backup their work. Beyond the required use for legal writing assignments, students were encouraged to use the computers to brief cases and outline their law school courses, and indeed to find other innovative and creative ways to apply these resources to the study of law. In the ninth week of the semester they received instruction in some advanced word-processing techniques. StarIndex<sup>14</sup> was offered as a tool for building a research file of case briefs and citations which might usefully be combined into an index or outline for a long legal writing assignment.<sup>15</sup>

At semester's end, a questionnaire sought student reactions to the computers, impressions of the usefulness of the computer, and evaluation of the center's personnel and facilities. The response was very positive:

12. IIT Chicago-Kent has a nationally renowned legal writing program under the direction of Ralph Brill. Brill was a strong supporter of the computer program. In early faculty development meetings the program was originally his idea. Meeting with him helped us to develop a pilot study that combined the first experiment in computer support of law students with the first semester legal writing program.

The legal writing program at IIT Chicago-Kent is quite extensive and demanding. The first semester course includes three memorandum assignments and two of these papers must be completely rewritten and separately graded. Legal writing assignments offer students their first feedback in law school.

13. WordStar is a registered trademark of MicroPro International Corporation.

14. StarIndex is a trademark of MicroPro International Corporation.

15. There was some debate in the teaching group about these sessions. Some teachers wanted to teach data base management using dBaseII or PFS File and Report. Others thought that this type of program was not needed to handle the thirty to fifty case citations normally accumulated in the research for the last paper. The StarIndex classes were the compromise, which met the objectives of neither group.

A large percentage of those enthused about entering the program retained their enthusiasm after the first term, while slightly over half of those who disliked the prospect of participating continued to feel this way. It is interesting to note that the number of positive responses were more than double the number of negative responses, and that there was a small shift on the part of those previously fearful before participation to a more neutral or enthusiastic position. In effect, experience seems to have created more positive than negative attitudes towards word processor use.<sup>16</sup>

Evidence of effects on the students' overall performance could not be developed. Since the entire class was involved in the project, no control group existed for performance comparisons. The legal writing faculty judged the group's papers were about the same as those they had graded in prior years. Grades were about the same. All instructors remarked that the papers were neater.

The semester revealed a great deal about the computer lab itself. The facility was designed as a showcase with glass walls and clusters of four computers on long tables in a long room. The room proved much too small, the ventilation and air conditioning inadequate, not because of machine heat but because of the body heat of twenty anxious law students.<sup>17</sup> The amount of space allocated to each work station was also too small. Special lighting was needed to prevent glare on the screens. The electronics of the room worked well and the IBM PCs proved very reliable and sturdy. The switches allowing computers to share printers and modems at a fraction of the cost of a true network were efficient. The glass walls discouraged dishonesty.<sup>18</sup>

The experience indicated a need for more structure. We had hoped the students would catch the teachers' enthusiasm, teach themselves, and discover new uses for the equipment in the process. Too many students were fumbling long into the semester. The "curriculum" needed work.

We also rethought our choice of software. WordStar was a good word processor for the legal writing papers, but inadequate for class outlines or creative textual data bases. Most students did not use the computers for class preparation, note revision, or examination outlines.

#### V. Summer 1984 Reexamination of the Role of Law Student Computing

The center's next experiment sought to build on the lessons of the January pilot study to move beyond use of the microcomputer as a word processor for legal writing papers, to exploration of microcomputer techniques to support all relevant performances in law school.<sup>19</sup>

16. Report of Barbara Finesmith evaluating Computer Pilot Study Student Questionnaires, summer 1984 (on file with the IIT Chicago-Kent Law Library). Barbara Finesmith served as a legal writing and research instructor at IIT Chicago-Kent from 1983 to 1985.
17. At one time we planned to put forty practicing lawyers in the room to teach them how to use microcomputers. Twenty users were often uncomfortably hot.
18. We were unable to remedy the work space deficiency in this lab, but our second and third student computer rooms provide extensive work areas for books and papers. We corrected the lighting problem by adding baffles to the overhead fixtures. Each table had one inexpensive dot matrix printer and one 1200 baud modem and a switch so that any of the four computers could be set to use peripheral equipment.
19. Using the new information learned during the Pilot we revised our proposal to IBM and suggested that a student briefer/outliner and a full text data base utility be developed as



During the Pilot Study period, many students sought independent access to the computer lab. These students tended to be much more innovative in their application of the computer to the tasks of law school, and their experience pointed us toward what was possible.<sup>20</sup> One second-semester student, who had volunteered to take part in some of the training and CLE in return for access to the computers, prepared for class at the computer by typing in the briefs of her cases and impressions of the prior classes. Being in a word processor, this material could be arranged and reorganized easily. As examination time drew near, the student began to review these accumulated notes and to prepare a distillation of the information in a study outline.

On reflection, this seemed like such an obvious application. Subsequent experience suggests that the student's extra semester must have been important in helping her to see this potential application. While we suggested this method in the next experimental study, few of our first-semester students used the technique because they failed to appreciate its usefulness. Only after the first law school examination, are students likely to understand the value of a data base of organized notes which can be easily formed into a study outline.

The accepted pedagogy of law school relies on classroom discussion of a series of cases to identify and refine legal concepts and doctrine. Facts are compared and reasoning sifted through these comparisons to find a consistent explanation in a principle of general application. These

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part of a microcomputer tool kit for law students. We planned to write software to implement the model of computer use described in the foregoing paragraphs.

20. Kent Busse, a third-year student not in the study, used a portable computer to take research notes in the library. He carried a Radio Shack Model 100 with a battery pack around the stacks. As he found cases or references for his research he simply typed the information into the computer. Later at home he "dumped" the day's research into his home computer for editing and more permanent storage. This technique seemed to be a powerful use of the computer in the research process. Citations and quotes and summaries need be recorded only once—on the portable—and the information could be incorporated in the draft or final paper without retyping and without proofreading. This was a perfect illustration of the computer replacing the ubiquitous yellow pad as the lawyers' tool of choice.

Interesting questions remain in determining the support of this use with software designed specifically for the lawyer. The note-taking computer eventually must transfer the notes onto a floppy disk or other storage medium. When the information begins to get voluminous, the user will want some quick and easy means of sorting out the various notes. The notes must be stored in a program that permits easy copying and moving of the text into draft and final documents. The assembly program should also be open to a convenient interface with the legal data bases. Citators and case history data bases should be consulted before the document is used. A convenient connection to these sources would be invaluable.

Resource problems are also posed by this method of student computer use. This method obviously requires that each student have his or her own machine. Even at large discounts on the least expensive briefcase machine this implementation would cost approximately \$200,000 to provide the students with the note taker. This cost is only the beginning. The note taker needs to be supported with machines in laboratories or at home which can store, manipulate, and print documents. If every student had a note taker, then the use of laboratory machines would be significantly increased. The cost spiral seems to get worse. One obvious solution is to provide computer facilities within the library. A lab of thirty-five computers has been constructed within the law school library. This will enable students to bring books to a computer for note taking.

principles or "the law" emerge from the synthesis of the facts and the reasoning in the cases subjected to the scrutiny of the classroom. One cognitive skill law students need to develop is the ability to reassess assigned material in light of classroom insights. This reevaluation of the cases and their meaning may be well supported by computers because of the ease of text revision. As new impressions and insights on the meaning of a case or a particular part of a case are discovered, it is a simple matter to revise or add to the notes about that case.

We decided that students should be able to enter their summaries of assigned cases into a computer programmed to accept such data. Revising case summaries as the cases are treated in class would help reinforce the lessons of the Socratic dialogue. Comparing holdings and drawing forth summaries of the cases as they relate to one another would naturally result in an organic outline of the course. To prepare for finals this organic outline could be rearranged and reorganized as a personal study guide.

During the summer of 1984, several new software programs appeared on the market which appeared to meet some of these identified needs. Outline processors touted as "idea processors" became available. The outline processor is a computer program that sets up a hierarchical data base. Concepts, sentence fragments or paragraphs of text can be entered in the outliner and linked to one another in a structure resembling a grade school outline. The software also permits the data once entered to be moved around—for relationships to be changed. Our second experiment included a test of the use of outline processors as an aid to law study.

#### VI. The 1984-1985 Experiment

In the fall of 1984 we taught an experimental group of entering students the use of computers. We extended the orientation prior to the start of law school by two days to do preliminary training. Thereafter, we offered a noncredit seminar for one hour per week. The student computer lab was set up to be a resource like the library for study, research, and legal writing. There was no other change in the first-year law school curriculum whatsoever.

Because the school then had only twenty-one computers for students, the program could not extend to all entering students. We invited volunteers from the students accepted in June 1984 for the fall entering class. Of those invited, approximately 60 percent volunteered. We chose sixty of them for the fall and added another forty in spring.

Computers and software were available to the experimental group at no charge. Each student was guaranteed ten hours each week of computer "prime time." Extensive extra time was available. Student teaching assistants were on hand to answer questions. They quickly proved invaluable for the hundreds of day-to-day questions new users have.

The first semester program began during orientation week. The software package included ThinkTank<sup>21</sup> as the outliner, WordStar as the word

21. ThinkTank is a trademark of Living Videotext, Inc.

processor, and local embellishments. We developed our own help system for WordStar and coupled the help screens to the word processor using Memory Shift.<sup>22</sup> We wrote case brief templates for ThinkTank and automated the briefing process using Prokey.<sup>23</sup>

Students were advised to use ThinkTank for two types of tasks: (1) to prepare for class, brief their cases; and (2) to plan and write initial drafts of their legal-writing assignments. We told students to use ThinkTank to prepare an outline that could be expanded using the ThinkTank editor. We told students that their class notes (notes prepared before and taken during class) could be entered using the outliner. ThinkTank could then be used to draw general principles from the cases as the semester continued. This material could be collapsed or expanded at will to be an organic study outline for the final examination. This same work pattern could be used to build up a preliminary draft of legal writing papers. We offered WordStar as a means of doing final cleanup and printing of the paper. We attempted to make the movement of files between the two programs convenient with macros written in Prokey.

At the beginning, middle, and end of the semester we distributed questionnaires to gather student impressions, suggestions, and use patterns. We also distributed a questionnaire to the entire incoming freshman class to determine their level of experience with computers prior to beginning law school. The data gathered in these questionnaires will be analyzed using statistical methods to determine what conclusions can be drawn about the effect of the computer on the performance and attitudes of the students. We have also gathered information concerning students' law school grades and time spent in using computers. Analysis of this data is not yet complete. In the meantime, we can share our impressions of students reaction to the project.

Most students were more interested in WordStar (the word processor) than they were in ThinkTank (the outliner). Our lab use records indicate that students stopped using ThinkTank soon after we introduced WordStar. This may be related to the heavy rewriting demands of the IIT Chicago-Kent legal writing program, but we suspect the phenomenon has more to do with general attributes of the first semester of law school.

It appears the students stopped using the computer to prepare for class very early in the semester. They used the word processor frequently because they had frequent writing performances. The clearest efficiencies, time savings, and cost savings offered by the computers lay in the preparation of papers. Deadlines made these tasks immediate and set the agenda for use of computer resources by the law students.

Once examinations loomed, students began to prepare outlines of their courses. Approximately one-third of the students turned to the tool that we had suggested for this task—the outliner.<sup>24</sup>

22. Memory Shift is a registered trademark of North American Business Systems, Inc.

23. Prokey is a trademark of RoseSoft.

24. In the fall semester, students in the study engaged in 1090 total sessions on the available computers, for a total of 2112.4 hours (1.94 average hours per session). Other students, not

It may be impossible to obtain wide compliance with the suggestion that all class preparation "case briefs" be keyed into the computer so that the outline processor can help synthesize the cases into a growing examination study outline. First-semester law students have not yet prepared for a law examination. For some, the concept of a course outline is foreign and unfamiliar. We found we had trained them and provided an automated solution for a problem that they did not realize they would face.

The ThinkTank editor proved to be too limited as a word processor to be useful as a writing aid. It proved to be a good outliner but totally inadequate to build a full first draft. Students were frustrated by the problems of converting files between ThinkTank and WordStar. Therefore, when the students learned WordStar, time pressure prevented them from mastering innovative uses of ThinkTank. The same time pressures affected attendance at the voluntary class sessions. As the semester proceeded the attendance at the weekly sessions fell off dramatically. After mastering WordStar many students felt that they had the resources needed to make good use of the computers and did not return for additional instruction.

Our questionnaire invited students to answer several open-ended questions. Sample comments on the program as a whole included:

"Very helpful and efficient as far as getting papers done."

"I learned a lot and the use of the computers was very beneficial in terms of legal writing and outlining."

"Very good. I had a lot of fun and learned a lot about PCs in general. My goal of making the PC a valuable tool in my law school work was attained."

"I felt the program was successful. I had no exposure to computers prior to the initial sessions. I became reasonably proficient to the point where I felt comfortable (and was able to function competently) as a Lab Assistant/TA."

"The program has been the greatest help to me of anything in law school, as far as preparing school work. Not only did it give me an invaluable tool, but I got to know classmates and professors better because of the interaction in the lab."

Not all comments were positive. One student simply said, "It was o.k." Another complained that "class instruction was too fast," while another stated that it was "minimally useful, principally owing to 'false starts'—i.e., first teaching ThinkTank, then WordStar."<sup>25</sup>

involved in the study, engaged in 1216 total sessions, for a total of 2044.2 hours (1.68 average hours per session). In August, all use of the computers by students in the study involved ThinkTank, which was not surprising considering that this program was taught to them. In the month of September, students were introduced to WordStar, and there were 221 individual sessions involving use of ThinkTank, as compared to 150 sessions with WordStar. In October, ThinkTank use dropped to 71 sessions, while WordStar use rose to 268 sessions. By November, ThinkTank use had sunk further to only 9 sessions, compared to 227 WordStar sessions. Statistics for December are for a limited period, as the final exam period was early in the month, but the increase in ThinkTank use (to 28 sessions) reflected some last minute attempts by some students to do course outlines (there were also 30 WordStar sessions during December, in a period during which there were no more legal writing papers due).

25. In fact, there were no false starts. The experiment was planned to teach ThinkTank first and then add instruction in WordStar.

We asked students whether they felt that, on the whole, the program was helpful to them during the semester—and why or why not. The majority of those responding answered yes. “I enjoy using the computer,” one student wrote, “and learning new ways to do things quicker. The computer allows me the flexibility I like in writing and editing papers.” “I was able,” another commented, “to transfer all my new knowledge to my own program. It gave me security and self-assurance.” Another stated that the “PC freed me from the tedious details, because mistakes were so easy to correct. Thus, I estimate that I had maybe one-third again the time that my classmates who typed had for research, rewriting, and preparing for other classes.” Of the few responding who felt it had not been helpful, the comments ranged from “I dropped out too soon,” to “time pressures precluded my effective use of the system.”

Overall, most students thought the experience valuable. We were determined to work at overcoming any shortcomings. To address some of these preliminary problems we chose a different software package for a second semester study. Approximately half of the first-semester group volunteered to come to school one week early in January 1985 to learn a new computer program for the spring semester. We added thirty new students to the study from a waiting list of interested first-year applicants.

The new software package, “Framework,”<sup>26</sup> was chosen because it combined in one integrated program all the features of the programs that we used in the fall. It offered good “what you see is what you get” word processing, a key reassignment macro system, built-in help, and, most important, everything was organized using an integrated outliner. The program also had visual appeal. Multiple windows opened and closed on the screen. Pull-down menus of commands flashed up and down. For those interested in numbers the program provided an integrated spreadsheet.

We revised the course instruction to move as much of the teaching as possible into the period before classes began. In this way we hoped to avoid intruding on valuable study time during the semester. Only five classes were scheduled during the semester, each two hours long.

Preliminary reaction from the new students has been very favorable. Framework has several small irritating features, but the new students and some of the old group report that they find the program invaluable for assignments in legal writing. Other students who started in the fall continue to use WordStar. Our study of student performance and attitudes supported a faculty decision to offer this type of instruction to all entering students in the fall, 1985.

#### **VII. Computer Program for 1985–1986—Integrating Computer Resources into Teaching Torts, Legal Writing, and Legal Methods**

Our program for the 1985–1986 academic year builds on what we have learned to date.<sup>27</sup> During the 1985 spring semester the torts faculty, the

26. Framework is a registered trademark of Ashton-Tate.

27. The development of this curriculum was a group effort of Ralph Brill, Miriam Steinberg, Sandra Lancaster, and Bernard Farber.

director of legal writing, and the computer center faculty developed a coordinated set of classes and exercises for all entering law students. Computer instruction is presented as part of an integrated educational offering. Students have more incentive to master the computer early if the skills they learn are tied in with a substantive course and linked to practical tasks and performances in legal writing. This integration enhances the computer's possible benefit as a productivity expander.

The computer center now has approximately seventy computers available for student use, deployed in three separate labs. All can serve as both teaching and service facilities. The largest lab is located in our law library. This gives us the capacity to serve our entire entering class of 170 day students and 90 evening students.

The first-year law student tends to see class preparation, legal writing assignments, and examinations as separate tasks. First-semester students are task oriented, seeing bits and pieces. To deal with this problem, we now use a team-teaching approach in a course called "Introduction to the Study of Law." The torts professors, legal writing instructors, and computer center staff all coordinate their efforts. Computer use is a part of this integrated program.

We teach eight hours of formal computer instruction during the introductory week of the fall semester. This first week is totally devoted to the torts, legal methods, legal writing, and computer material. All other classes begin a week later.

The computer center staff also teaches an hour and a half class twice each week for the following three weeks. Later in the semester we hold review sessions dealing with techniques useful in legal writing assignments, preparation for a torts midterm and final examinations.

The computer center teaches each student to brief torts cases using the computer. Because the computer makes revision so easy, students are encouraged to add new impressions after class and correct errors. The legal writing faculty, in small group meetings, reviews and discusses these briefs before and after class.

As the semester proceeds, legal writing instructors discuss the interrelation of the various torts cases, working on case synthesis. The small size of the legal writing sections permits frequent feedback and helps reinforce and implement the learning that begins in the large Socratic class. Learning case synthesis can be assisted in individual study by the use of computer outline processors to capture and organize the salient insights in each case.

Computer learning aids will also be used to increase teaching resources. In torts, the Keeton exercises are available. A new exercise by Clark Kelso may be used to help students learn how to brief cases and compare their briefs to the notes on the cases prepared by experts.

Having found law students to be slow in picking up on possible uses of computers for class preparation and outlining, when simply given the tools and encouragement, we are turning to systematic training. While there are many "proper" ways to brief a case or develop an outline, students learn better if they have one model to follow. Our intent is to expose students to at

least one very good model of computer utilization. Later they will, surely, develop their own variations.

To be effective, our computer teaching program has frequent student performances, evaluated by the faculty. For the first few weeks we require students to hand in the briefs, "modified" briefs incorporating class notes, and study outlines created on the computer. The legal writing instructors review the student's work and critique it lightly, offering helpful suggestions. The primary objective is to provide the feedback necessary for effective learning. It also allows us to monitor the students' level of mastery.

This is an exciting venture, with great potential benefit to both legal education and the legal community generally. Student enthusiasm for the new concept has been overwhelming. The results of our first questionnaire evaluating the 1985-86 program show a high rate of continuing, frequent use of computers by our law students. After thirteen weeks of the fall 1985 semester, sixty percent of the day class continued voluntarily to use computers for their daily work.

As the use of computers by lawyers in law practice expands, law schools must play an increasing role in educating the attorneys of tomorrow to be competent members of an automated profession. The experimental program at IIT Chicago-Kent is one school's attempt to meet that challenge.