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Of Painters, Sculptors, Quill Pens and Microscopes: Teaching Legal Writers in the Electronic Age

Lucia A. Silecchia
The Catholic University of America, Columbus School of Law

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I. INTRODUCTION

As lawyers' communication ability is recognized as increasingly important—and as criticism of lawyers' writing becomes more adamant—literature in legal education has advocated ways in which
legal writing can be taught more effectively. Much has been said about legal writing programs in an attempt to assess the pedagogical techniques that can assist such programs in meeting the demand for better legal writing. One issue that has not been extensively discussed is the growing need for legal writing programs to adapt to the electronic age. Yet, if law schools are to train lawyers to be successful writers, they must recognize the new reality of “tech-prose” and understand its promise and peril for lawyers. For law students and lawyers alike, “unless you learn to speak the language of technology in the twentieth century, you will have no voice in the twenty-first.”

In the past, legal writers, like their counterparts writing in other fields, worked like painters. Their task was to take blank sheets of...
paper and, with strokes of pens or clicks of typewriter keys, create written art where nothing had existed before. Since the early 1980s, a swift revolution has changed the way in which today's lawyers write.

For a general discussion of issues in contemporary composition theory beyond computerization, see COMPOSITION IN THE TWENTY-FIRST CENTURY: CRISIS AND CHANGE (Lynn Z. Bloom et al., eds., 1996). In addition, see TUMAN, supra, at 52-80, for an interesting discussion of the changes technology has brought to the process of reading. This connection between writing and reading is more fully explored in Linda L. Bickel, Word Processing and the Integration of Reading and Writing Instruction, in WRITING ON-LINE, supra, at 39-45 and Stuart Moulthrop & Nancy Kaplan, They Became What They Beheld: The Futility of Resistance in the Space of Electronic Writing, in LITERACY & COMPUTERS, supra, at 225-33.

In addition, the publication COMPUTERS AND COMPOSITION: AN INTERNATIONAL JOURNAL FOR TEACHERS OF WRITING (Gail E. Hawisher & Cynthia L. Selfe eds.) has been created to facilitate discussion among writing teachers about the impact of computers on the teaching of composition. A publication such as this one, with its interdisciplinary approach, might be useful for legal writing professionals addressing these issues.

9. The actual date at which one can say this “revolution” began is, of course, a matter of debate. However, it was in the 1980s that computer capabilities that had existed prior to that time became popular and economical enough to be widely used by most students, rather than merely a futuristic promise or an expensive luxury enjoyed only in large offices or sophisticated settings.

10. This departure from the printed word has, of course, not occurred only in law. See Charles Krauthammer, Downloading the Future, WASH. POST, June 21, 1996, at A23 ("While text will survive video, paper will not survive the computer. At the turn of the century, text will forever leave paper and take up residence on-
No longer do lawyers do most of their work "by hand." Instead, most legal writing is now done on word processors. Because word processors make it easier to write more than was possible "by hand," modern legal writers are more akin to sculptors than painters. Such writers must create finely-tuned written products from the large quantities of material that can now be inputted into a document and then edited and whittled away to create a finished product.

This Article examines how the arrival of the electronic age has changed the ways in which lawyers write and argues that these changes require rethinking the way legal writing is taught. Part II of this Article discusses the increased use of computers as the primary medium for legal writing. This development mandates studying the differences a word processor makes in the way lawyers write and learn to write.

In Part III, this Article posits that writing via word processor may detrimentally change legal writing and explains how this might happen. Part IV then acknowledges that there are some ways in which legal writing may be improved significantly through the use of computers. Reconciling these benefits and detriments is the challenge for today's legal writing programs. Part V concludes with recommendations for ways in which those who teach legal writing can refine their pedagogical techniques to assist new lawyers in becoming effective writers and word sculptors in the electronic age.

II. LEGAL WRITING IN THE ELECTRONIC AGE

In the past, legal writing, like most writing, was done "manually." That is, first drafts of memoranda, letters, pleadings, motions, briefs, and contracts were written on paper—usually on the ubiquitous yellow legal pad—and were then typed up in their final version. This
process would commit the work to a final form difficult to edit or alter except by complete retyping.  

However, such days are past, and legal writers now accomplish most of their writing on a word processor. According to a 1993 survey, "seventy-six percent of the lawyers in reporting firms have a computer or terminal on or near their desks." This is a staggering increase from the seven percent of attorneys who were so equipped in 1986. There can be no doubt that use of such technology will in-

Tuman, supra note 8, at 2. Unlike the typewriter, however, word processors are more than just a tool for writing and, therefore, they have a greater role in the substantive development of the text. See Williams, supra note 8, at 57 ("Word processors are not simply electronic typewriters. They offer not only more facilities but also different ones which may have particular effects on the way people write.").  

15. As a practical matter, this often involved more than one person in the process of writing—an attorney who would write the draft in longhand and a secretary who would create the typed version and handle the revision. The notion that the drafting and typing could be combined into one process is a new one, becoming widespread only as the word processor has become popular. 

A legal writer in this earlier environment would be concerned primarily with ensuring that a first draft was relatively polished, given the practical difficulties in editing. Such writers would also have a greater incentive to be succinct and selective because it took longer to commit text to paper and it was more complicated to eliminate material from a document once it was written. A lawyer in the pre-electronic age would, most likely, write with the expectation that there would be less rewriting and revision than is possible today.  

16. See Scott J. Burnham, Drafting Contracts 289 (2d ed. 1993)("Computers will never replace attorneys, but attorneys who use computers may replace attorneys who don't." More and more attorneys are beginning, perhaps begrudgingly, to agree with that sentiment"); Richard A. Danner, Facing the Millennium: Law Schools, Law Librarians, and Information Technology, 46 J. LEGAL EDUC. 43, 45 (1996)("With due acknowledgment of the few holdouts in each law school, it can be said now that we all write using computers.... Ilt is clear that virtually all students, faculty, and staff in law schools use computers to write.").  

17. See Eric H. Hobson, Taking Computer-Assisted Grammar Instruction to New Frontiers, in The Place of Grammar in Writing Instruction: Past, Present, Future 213 (Susan Hunter & Ray Wallace eds., 1995)("Every day, more writers work almost entirely without pens or paper, via keyboards attached to powerful word processors, affixing language to no other page than the electronic. Likewise, much writing takes place in temporal relationships heretofore inconceivable ... "). See also Thomas O. Harbison, Word Processing for Lawyers, 85 CASE & COM., Jan.-Feb. 1980, at 20 (providing early discussion of word processing in legal practice).  


crease and continue to become a pervasive and essential part of a competent lawyer's practice. This is true of law students as well as attorneys.

20. Id. Of course, using these figures to assess the actual ways in which those attorneys use their computers is an inexact science. See Joseph D. Birmingham Jr., *NYSBA Studying the Emergence of the Electronic Lawyer*, STATE B. NEWS (New York), Oct. 1994, at 16 (“There is tremendous disagreement over just how technically savvy lawyers really are. Some surveys suggest that as many as 80 percent of lawyers in firms of 20 or fewer use computers. Computer-industry estimates put this figure as low as 40 percent. ... I would agree that 80 percent of lawyers have computers in their office, but 40 percent of lawyers personally use computers.”); Ronald W. Staudt, *Does the Grandmother Come With It?: Teaching and Practicing Law in the 21st Century*, 44 CASE W. RES. L REV. 499, 513 (1994)(“We are approaching the day in the relatively near future when every lawyer will be equipped with a personal computer.”); Rosemary Motisi, *To Compute or Not to Compute? There is No Question*,colo. Law. 57, 57 (1995): The ALA Denver-Area Salary and Benefits Survey for 1993 indicated that in the firms surveyed, 73 percent of the attorneys and 94 percent of the paralegals had computers. Nearly all the attorneys (93 percent) used word processing, and more than two-thirds (68 percent) did computerized legal research. The other applications in use by attorneys were reported as electronic mail, docket control and calendaring, tracking time, and both litigation support data-bases and spreadsheets.

This increased use of computers in law practice is foreshadowed by—or caused by? or resulting in?—the growing presence of computers in law schools generally and legal writing classes specifically. The proliferation of computers in elementary schools, secondary education, college courses, and homes has resulted in a new generation of law students ready to work with technology and eager to explore how technology will change their studies and practice.


See also Staudt, supra note 20 (discussing pervasive use of technology in modern legal education).

See LeBlanc, supra note 23, at 3 ("[A] recent poll revealed that 25 percent of American households now own personal computers and that 70 percent of those computers are being used for schoolwork.").

See Matasar & Shiels, supra note 19, at 916-17 ("Virtually all of the law school's students own computers before starting school. Most of them have used computers in high school and college and expect to be taught with up-to-date equipment and current techniques. Such students cannot absorb education passively; they demand interaction with their learning environment—interaction that the computer provides."); Becky Sloane, Cornell Goes OnLine to Help Students Speed Up Legal Research—and Learning, Student Law., Sept. 1993, at 10 ("It wasn't so very long ago when a typewriter with an erase ribbon was the electronic study tool of choice...")
Not surprisingly, the computer has entered legal education in many ways. Much recent attention has been focused on the computer's potential as a powerful legal research tool. In addition, the use of computers for electronic casebooks, electronic books generally, computer-assisted tutorial programs, e-mail communication, and other applications have become common in legal education.

For example, students are now familiar with computers and can distinguish between a hard disc and a floppy, and it is nearly impossible to slip through law school on less than friendly terms with a computer. Students in primary schools, high schools, and colleges use computers to study and write.

This evidence indicates that today's law schools do not need to teach students to overcome the past perception that "the proper place for a computer is in front of the secretary." For a cautious and somewhat pessimistic view of the computer's impact on legal education, see Robert H. Thomas, "Hey, Did You Get My E-Mail?" Reflections of a Retro-Grouch in the Computer Age of Legal Education, 44 J. LEGAL EDUC. 233 (1994). For early discussions of the computer's impact on legal education generally, see Russell Burriss et al., Teaching Law with Computers: A Collection of Essays (1979).


See Volokh, supra note 21, at 2060-61 (describing use and advantages of online documents).

tion, simulations, analytical instruction, the World Wide Web, the Internet, electronic newsletters/discussion groups, electronic conferences, continuing legal education, and other applications has been addressed in legal literature. The dawning of the electronic age has also begun to change the fundamental way in which legal information is perceived. This recent transformation "provides the law with a new environment, one that is less fixed, less structured, less stable and, consequently, more versatile and volatile."

33. This e-mail communication may be among students, between students and professors, etc. See Matthew Goldstein, Bulletin Boards, E-Mail Transform Law Schools, N.Y. L.J., Nov. 8, 1993, at 1; Matasar & Shiels, supra note 19, at 929-31; Sloane, supra note 27, at 12-13; Thomas, supra note 28, at 236-48. See also Ernest A. Schaal, Electronic Mail Made Easy, in SECTION OF LAW PRACTICE MANAGEMENT, supra note 21, at 129 (discussing use of e-mail in law practice).


38. See id. at 2075-84 (describing in detail attributes and quality of electronic conferences).

39. See id. at 2075-84 (describing in detail attributes and quality of electronic conferences).

40. See Joshua J. Kaufman, Games Lawyers Play, WASH. L. W., Jan./Feb. 1997, at 22 (describing a computer program that may qualify for C.L.E. credit).


42. For relatively early discussions of the role of computers in legal education, see BURRIS ET AL., supra note 28.

Perhaps none of the changes that the computer has wrought is as fundamental for law students as its new central role in the writing process.

Today's law students write with the assistance of computers. This reality mandates changing the way in which legal writing is taught to reflect how computer use may alter writing. For better or worse, as "notions of literacy change so too must our approaches to writing and writing instruction."

Much current literature addresses the ways in which legal writing pedagogy may be improved. However, very little has been said about how those who teach legal writing should adapt their teaching to prepare students to write in the new electronic medium. Many legal writing programs follow a basic, traditional format, with an emphasis on legal memoranda and appellate briefs. While all of these courses teach writing style, organizational technique, and analytic development, these activities are changed by the use of a word processor. Most widely used legal writing texts do not discuss the im-


44. But see Law in a Digital World, supra note 43, at 455 (arguing that it is in law libraries "where technological innovation may be at its highest.").

45. RE-IMAGINING COMPUTERS, supra note 8, at ix.


48. See Markman, supra note 46, at 554 ("Legal writing courses are generally quite consistent in program format and scope, although educators do propose variations. Most first-year programs require legal memoranda and appellate briefs, and about half require client letters, and about half require either pretrial or trial briefs. Fewer than half require client letters, and about a quarter require drafting of documents or legislation." (citations omitted)).
pact such technology might have on writing style, and it is unclear whether such issues are addressed explicitly in legal writing courses.

Yet, writers work differently when they employ computers. Word processing has changed the fundamental perception of the very act of writing as "a new literacy is emerging out of our electronic revolution." Thus, legal writing programs must be taught with an eye to the effects of technology on the prose that law students generate. Such teaching must begin with an understanding of the differences—both positive and negative—that word processing brings to legal writing and, indeed, to writing in general.

49. There are several exceptions to this observation; portions of several newer legal writing texts bring students' attention to the reality of the word processor. See, e.g., Mary Barnard Ray & Jill J. Ramsfield, Legal Writing: Getting It Right and Getting It Written 69-70 (2d ed. 1993)(discussing "computers for writing"); Diana V. Pratt, Legal Writing: A Systematic Approach 195 (1989)(discussing "the role of the word processing system in the writing process."). In addition, the use of word processors in legal drafting has also been discussed in legal drafting texts. See, e.g., Barbara Child, Drafting Legal Documents 194 (1988); Reed Dickerson, Materials on Legal Drafting 326-32 (1981). Of course, texts discuss such issues as wordiness, editing, proofreading, and writing process—all issues with direct implications for computer use. However, the explicit coverage of this topic overall is still rather limited.

50. See discussion infra Parts III and IV.

51. See Andrea W. Herrmann, Evaluating Computer-Supported Writing, in Evolving Perspectives, supra note 8, at 160. See also Nancy Kaplan, Ideology, Technology, and the Future of Writing Instruction, in Evolving Perspectives, supra note 8, at 14 (“In the coming decade, as electronic texts, hypertexts, and hypermedia texts proliferate and as our pedagogical practices add electronic discussion to the oral dialogues that have been the staple of the classroom, writing instruction can no longer concern itself exclusively with writing on paper."); LeBlanc, supra note 23, at 1 (“There is a trap in talking about writing and computers. The trap is to consider writing as a ‘natural’ activity and the computer as a technology that merely serves it. This fallacy asserts that writing is writing, whether it be done with pencil, pen, typewriter, or computer—the intellectual act of composing remaining fundamentally unchanged by the various composing tools... [However], [t]he movement from orality to literacy was driven by the adoption of a new technology—writing—a technology no more natural or fixed than any other."); Patricia Sullivan, Taking Control of the Page: Electronic Writing and Word Publishing, in Evolving Perspectives, supra note 8, at 47-48 (“Because theories of electronic writing to date have been enhancements of the theories of writing advanced in composition studies, they have not seen the computer adding a significant component to the writer-text-reader relationship... Yet,... the electronic drafting process could be seen to make the distinction between early and late drafts increasingly seamless and less distinctive.").
III. THE PITFALLS OF "TECH-PROSE"

The use of technology in the writing process is not a temporary
development, nor is it a passing fad. Obviously, the movement of
lawyers to the word processor has the potential to improve the ways in
which lawyers create the written art that is their livelihood. However,
literature in composition theory suggests that this development
will not produce unmitigated good, but also may have a negative effect
on writing. The differences brought about by the shift to computers
affect both the process and product of writing. Thus, legal writing
teachers must assess this impact on their students' writing critically
since "technology cannot simply be incorporated into curricula without
discrimination, without careful thought as to how the integration of
technology will affect students and pedagogical approaches."

Many of the differences brought about by the computer involve the
process of revision, suggesting that students react differently to edit-
ing their work when it is drafted on the computer. This is of particu-

52. See Elizabeth Klem & Charles Moran, Computers and Instructional Strategies in
the Teaching of Writing, in EVOLViNG PERSPECTivES, supra note 8, at 133 ("Writ-
ers who have composed on computers seldom turn back.").
53. See MONTAGUE, supra note 8, at 141 ("[T]he technological age is upon us and
must be taken seriously by every person in the educational community.").
54. These benefits are fully discussed in the text accompanying infra notes 113-167.
55. See, e.g., Edward Mendelson, How Computers Can Damage Your Prose, TIMES
56. In some literature criticizing modern students' writing ability, the emphasis on
computer training in early education has been blamed—perhaps overly so—for
the decline in basic writing ability. See, e.g., Meyer, supra note 46, at 782 ("We
are all affected by the seismic shift of popular culture from a print-based culture
to a post literate, technology based, oral and visual story culture. We process
information almost exclusively via imagistic narratives. Attention spans are
compressed."); Survey Faults Writing Skills of Students; Other Subjects Given
Priority, Teachers Say, WASH. POST, Nov. 18, 1994, at A50 (reporting American
Federation of Teachers and Chrysler Corporation survey indicating that "teach-
ers judged writing the third most important subject for children to learn, after
reading and math. Earlier surveys . . . said parents rank writing fourth, and
students, fifth, after science and computers."). It is unlikely that the increased
presence of computers in pre-legal education is singlehandedly capable of de-
stroying the writing ability of future law students. But, over time, it seems prob-
able that it will change the perceptions those students have of the importance of
traditional writing competence.
57. CRITICAL PERSPECTIVES, supra note 8, at ix.
58. Revision is an important part of legal writing. For a full discussion of the theo-
etical and practical aspects of revision in legal writing, see James F. Stratman,
Teaching Lawyers to Revise for the Real World: A Role for Reader Protocols, 1 J.
59. For an excellent discussion of the process for guiding students through the edit-
ing and revision process of scholarly legal writing, see Elizabeth Fajans & Mary
R. Falk, Comments Worth Making: Supervising Scholarly Writing in Law School,
46 J. LEGAL EDUC. 342 (1996). Professors Fajans and Falk comment, "The rela-
tion between electronic and print media and its effect on scholarly writing are
lar importance to legal writing programs that often include rewriting assignments as an integral part of the program. For some students, computers have created the perception that complete new drafts are not needed. Because it is so easy to do small-scale fine-tuning, even writers with the best of intentions may, paradoxically, turn out more successive "drafts" but make fewer meaningful improvements:

The computer makes it so easy to make minor changes to your first thoughts that second thoughts begin to seem superfluous. Writers who used to type successive drafts, sharpening the focus and shifting the weight of their argument at every turn, now retouch their first drafts until their prose settles into an entropic sameness.

This ironic result undermines the often-touted benefit of the word processor as a useful editing tool and suggests that it may actually harm the editing process.

It has also been observed that the type of editing that student writers do varies depending upon the tools with which they write:

The evidence suggests that some writers do more revision while composing with a computer than with a pen or typewriter, but the modifications are limited to spelling, punctuation, and other surface features.

open questions." Id. at 342. This "newness" and uncertainty suggests, among other things, the necessity for careful inquiry into "effects."

60. See Lynn B. Squires, A Writing Specialist in the Legal Research and Writing Curriculum, 44 ALB. L. Rev. 412, 418 (1980)(advocating that "revision should be a formal part of the first-year curriculum in a legal research and writing course. At least one piece of writing should be completely revised as a standard assignment for each student."). According to Jill J. Ramsfield and Brien C. Walton, Survey of Legal Research and Writing Programs (1994)(unpublished survey on file with the author at Catholic University and with the University of Nebraska Law College Library), 24.6% of legal writing programs require students to do at least one rewrite of all assignments and 56.2% require rewrite of some, but not all, assignments. Only 19.2% indicated that no rewrites were required. This indicates that rewriting is an important component of most courses because it is assumed to have a value in teaching. Hence, to the extent that computer use affects rewriting, it is of particular importance in legal writing programs.

61. Mendelson, supra note 55, at 28. See also Ramsfield & Walton, supra note 60 ("Even those writers who recognize that revisions they make on screen tend to be inconsistent, incoherent, or incomplete, often insist that they can avoid all danger by composing only first drafts on screen and making all revisions on pages that emerge from a printer. By the time the prose reaches the printer, the damage is already irreparable.").

62. For a discussion of the reason this might occur, see Erna Kelly, Processing Words and Writing Instructions, in Writing At Century's End, supra note 8, at 28 ("It is certainly difficult to rethink a paper no matter how it is produced. Yet perhaps the ease with which a student can change spelling, punctuation, words, and phrases on a computer exacerbates the problem. By spending time prettying up the text, a student can delude herself into thinking she has truly revised it.").

63. Ronald T. Kellogg, Idea Processors: Computer Aids for Planning and Composition Text, in Computer Writing Environments, supra note 8, at 80.
If this observation is accurate, it is disturbing. It is undoubtedly helpful for so-called "surface" revisions to be done well. Attention to such details helps create a polished, credible, and professional product to which student writers and lawyers should aspire. However, the content of the paper is more significant because that constitutes the substance for which the lawyer is hired or to which the student is assigned. Any suggestion that word processing reduces the amount of attention paid to content is serious and a factor that legal writing teachers must consider in guiding the editing process.

64. The accuracy of this observation has been debated. See Gail E. Hawisher, Research and Recommendations for Computers and Composition, in Critical Perspectives, supra note 8, at 52-53 ("We find conflicting results when we examine two variables: revision and quality. Slightly more studies found an increase in revision as found no increase in revision, and fewer studies found improvement in quality as found no improvement. These findings suggest that writers' predispositions as revisers or nonrevisers are more significant in predicting behavior than the influence of the machine and the ease with which writers revise with word processing."); Rodrigues & Rodrigues, supra note 24, at 5-13 (discussing different perceptions of the impact of word processors on student revisions).

65. See also Montague, supra note 8, at 48 (quoting study finding "less conceptual or content-level planning and more sequential or local word and sentence level planning with word processing for both experienced and student writers."); Tuman, supra note 8, at 87 ("Without sufficient encouragement, for example, students with access to word processors often use the machines only to check their spelling and produce clean final copy, and not to undertake extensive revisions of their work."); Shawn M. Glynn et al., Computer Environments for Managing Writers' Thinking Processes, in Computer Writing Environments, supra note 8, at 11 ("The word-processing program we use does not provide the critical feedback students need to make substantive revisions of content."); Kellogg, supra note 63, at 80 ("The evidence suggests that some writers do more revision while composing with a computer than with a pen or typewriter, but the modifications are limited to spelling, punctuation, and other surface features."); Michael M. Williamson & Penny Pence, Word Processing and Student Writers, in Computer Writing Environments, supra note 8, at 95 ("Student writers... often revise only to correct errors, redrafting only to achieve clean final drafts."). But see Williams, supra note 8, at 204-05 ("Word processing often leads to more drafting and revision than writers previously carried out. ... [A] writer may pause for thought in the middle of composing, idly scroll back through the text for a reminder of what s/he's written, notice a poorly written phrase and spend the next half an hour revising. ... Typically in paper-based writing this does not happen so often. Words once written tend to remain untouched except for relatively superficial correction... "). Kelly, supra note 62, at 33 ("Contrary to frequent findings suggesting that many students make only surface revisions, these students' revisions covered a wide range."). See also Williamson & Pence, supra, at 118-19 (discussing generally the process of revision in different formats). For a more positive spin on the use of the word processor for "surface" editing only, see Knapp, supra note 8, at 6 (emphasis added):

Seventh and eighth grade students in a recent research study at Stanford University reportedly made three times more changes in their written work when using a word processor than when writing with pencil and paper. The changes were mostly at the word level, but even these were seldom made with pencil and paper, according to the study.
The issue of incomplete revision may not be quite as dangerous as these studies initially suggest. With electronic writing, there is less of a distinction between a draft and the final product. "The notion of 'draft,' which has always been a bit artificial, may be more difficult to sustain in the world of 'fluid text.'" Thus, students may be revising more than they report. Nevertheless, these changes in the editing process are noteworthy and warrant attention when students are taught revision.

Compounding this problem, the level of editing that can be accomplished through a word processor varies depending on the writer's style; yet, law students seldom consider or are taught to consider what type of writers they are. It is particularly difficult to edit electronically for those writers who "engage[ ] in few prewriting activities and prefer[ ] to move immediately into composing rough first drafts to discover what they ha[ve] to say." For this group of writers, the computer can make writing more difficult. Because editing electronically is difficult, a writer who plunges into a writing project without careful planning will be faced with a draft needing serious editing, yet already "committed" to the computer. This is not as great a difficulty for those who do extensive "prewriting" on paper and are thus able to use the computer efficiently "to handle surface-level planning, translating, and editing during drafting." However, unless students are trained in assessing their writing style, it will be difficult for them to

For a fuller, albeit older, discussion of word processing and its impact on editing, see Richard Collier, The Word-Processor and Revision Strategies, 34 C. Coan'isoti NOM & Comm. 149 (1983).

66. See Klem & Moran, supra note 52, at 135.

67. For an excellent summary comparing forty-two studies on the computer's effect on student writing, see Hawisher, supra note 64, at 48-51. As this summary demonstrates, much is still unknown about the computer's true impact on writing.

68. Kellogg, supra note 63, at 79.

69. Id. "One such writer could not rearrange text as well as he could . . . on paper, while others felt obligated to save too much material that they would have thrown away if it were handwritten or typed. . . . These writers found it difficult to read drafts on the screen and plan on the basis of their constant reviewing through composition." Id.

70. Id.

71. How to train students to assess their writing style is not an easy task. One method of doing so may be to ask students to keep a "timeline" indicating how they tackle work on a particular project. For example, if students are given ten days to write a memorandum, they should note, for days one through ten, what tasks they did. These tasks may include, for example, researching, outlining, sketching out a rough draft, revising, updating research, cite-checking, line-editing, etc. Alternatively, they may include more specific tasks such as revising on screen, printing out a draft hard copy to edit, etc. By reviewing when they turned to each task within the ten day period, students may be able to classify their writing style.
gain the maximum benefit from electronic assistance in their writing.\textsuperscript{72}

The editing process is also undermined by the fact that a writer can view only a small section of the text on the screen at any one time.\textsuperscript{73} This makes it more difficult to do the serious “global” editing required in substantive legal documents, and may also make students less likely to examine the logical relationships between sections of their papers.\textsuperscript{74} Thus, a student may have a perfectly sound case analysis on page three of a draft memorandum. If that is all that appears on the screen at the time a student is editing, he or she may not realize that a statutory explication appearing on page four should be moved before the case analysis. This is less likely to happen if the student prints out the paper, assesses the “big picture,” and edits from the hard copy. Evidence shows that very frequently students will edit from a hard copy.\textsuperscript{75} However, all students may not have easy access to printers, nor may they perceive the need to gain such access.

\textsuperscript{72} See Herrmann, supra note 51, at 156 (describing study indicating that “[w]hen writers used word processing alone, there was significantly less planning before writing and significantly less high-level planning overall than when writers used pen and paper. At the same time, there was significantly more local-level planning when word processing only was used. These findings suggest that the choice of writing technology influences a writer’s composing process and may exacerbate, rather than facilitate, certain difficult aspects of the writer’s task.”).

\textsuperscript{73} Naturally, the amount of text displayed on a computer screen at any given time will vary given the type of screen, the typeface being used, and the word processing program. However, one estimate is that “the screen holds fewer words than you can fit on a five-by-eight-inch note card.” Mendelson, supra note 55, at 28. This problem is ameliorated, in part, by programs with “windows” which allow a writer to view several portions of a text at the same time. For a more positive perspective on screen size and its effect on editing, see Costanzo, supra note 8, at 105 (“Some teachers believe that the screen’s size may make it easier to focus on one writing task at a time.”).

\textsuperscript{74} See Klem & Moran, supra note 52, at 137 (reporting study results indicating that “students working on-screen report less ‘text sense.’ They do not see their whole text as easily in this new medium; they report feeling ‘lost.’ To get a global sense of the text, students need to print their work and see it on paper.”); Mendelson, supra note 55, at 28 (“The relation between the words you write now and the words you wrote earlier becomes ever more tenuous . . . .”).

\textsuperscript{75} See Christina Haas, “Seeing It on the Screen Isn’t Really Seeing It”: Computer Writers’ Reading Problems, in Critical Perspectives, supra note 8, at 17 (“Most of the computer writers I have interviewed . . . print out their texts and read from hard copy. One writer put it this way: ‘I use hard copy because seeing it on the screen isn’t really seeing it.’”). Haas suggests a variety of reasons for this desire to edit in hard copy:

- “[W]e all learned to write with pen and paper and few of us have computers available all the time.”
- “Some writers mention a difficulty in knowing how the finished product is going to look, while others have difficulty detecting errors on the screen.”
- “Writers seem to like the portability of paper . . . .”
Hence, such editing may never occur, and students will not receive the significant benefits of editing from a hard copy.76

Writing with a computer also eliminates the "paper trail" that once came with writing by hand.77 One may print hard copies at each stage or red-line to show changes as they are made, but unless this conscious effort is made to document the paper's evolution, it will be more difficult for student writers to watch the paper develop and to think carefully about what is being changed and why.78 This may be a serious disadvantage for students who have difficulty articulating their thoughts and who need to see, in a tangible way, the lines along which their papers are developing.79

Some evidence suggests that the impact of computers on writing may also vary depending upon the initial skill of the writer.80 That is, not all students will benefit from the use of computers in the same way or to the same extent. If those students who profit most from computer use are the ones who already possess advanced writing ability,81 this should be considered in the legal writing course. It is certainly acceptable to improve the skills of the class's top writers and it would be a disservice to them to suggest otherwise or to deprive them of the tools that will enable them to excel. At the same time, legal writing teachers must be aware that the benefits of the computer's...

76. *Id.* It has been suggested that if hard copy editing is not done, the students' final product will suffer. *See id.* at 18 (reporting results of study indicating that "subjects' proofreading on hard copy [was] more accurate," and subjects "could read faster and understand printed material better when working with hard copy.").

77. *See id.* at 23 ("A published novelist spoke of the fact that with his computer he felt a loss of the 'history of the text'—those lines you discard and then want to pull back later—with the computer they're just gone.").

78. *See Mendelson,* supra note 55, at 28 ("When you write and revise on paper, the actions you can perform are infinitely various and subtle. You can write notes in the margins, draw arrows to remind you of echoes [sic] to be removed or parallels to be emphasized. You can leave cues for the next stage of revision by circling doubtful phrases or writing large or small question marks anywhere on the page. You can deploy any idiosyncratic or conventional set of proof-reading marks.").

79. This may also make it more difficult for a teacher to have an effective conference with a student to explore how that individual goes through the process of revision.

80. Williamson & Pence, supra note 65, at 94 ("[T]he research on learning to write has uncovered important differences between the composing strategies of student or novice writers and expert writers.").

81. *See Kellogg,* supra note 63, at 81 (describing study finding that "only the talented writers seemed to benefit in the quality of their compositions when using a computer, because only they effectively generated useful content using rough-draft strategies. Average writers gained nothing with computer tools.").
assistance may not be universally shared. The manner in which computers may broaden the gap between classes of students might also suggest the wisdom in requiring that one or several of the students' assignments—preferably short ones—be written manually. This may be an effective way of (a) narrowing the gap and, more importantly, (b) diagnosing whether particular writing deficiencies are inherent in particular students' writing abilities or whether these problems are exacerbated by their attempts at computer use. The students who are poor writers82 may require assistance not only with developing basic composition skills but also with using the computer to improve their writing.83

The use of a word processor can also tempt students to overrely on the technological "crutches" now built into most programs.84 The purpose of these features is to assist writers in creating polished drafts and deterring technical errors. Yet, spell checkers,85 grammar tools,86 and similar features—including "Blue-booking" aids—may create the impression among student writers that such tasks are mere technical chores that may be done by machine.87 For some, this per-

82. But see Hawisher, supra note 64, at 53 ("There is some indication that basic writers may profit more from a word-processing environment than other students.... By freeing basic writers from the laborious task of writing by hand, computers might be especially promising tools for low-achieving students."). The ambivalence regarding the word processors’ impact on poor writers is explained, in part, in Lisa Gerrard, Computers and Basic Writers: A Critical View, in CRITICAL PERSPECTIVES, supra note 8, at 94 ("These weaknesses [of poor writers] make them especially likely to misinterpret the directives of poorly designed software or to fail to utilize the computer as an instructional tool. At the same time, the computer’s capacity to invite experimentation, prewriting, revising, and collaboration ... address several of the most pressing needs of this group.").

83. A more difficult, practical question is who should be responsible for providing this computer training. Arguably, it is not the responsibility of legal writing instructors to offer such technical training. However, this problem does suggest that those in legal writing programs play an active role in shaping what types of technical and instructional resources their law schools are committed to provide.

84. See WILLIAMS, supra note 8, at 203 ("[A]s writing technology encourages freedom, increases productivity and provides a wide range of writing support, poor writers may become too dependent on the technology or fail to be critical enough of their use of that technology, leading to over-production, weakly edited text or text so heavily reworked that it is unreadable.").

85. See id. at 69-70 (discussing spell checking functions of word processing programs).

86. For a full discussion of the grammar programs available in word processing tools, see Michael E. Cohen & Richard A. Lanham, HOMER: Teaching Style with a Microcomputer, in A WRITER'S TOOL, supra note 8, at 83; Hobson, supra note 17, at 213-24; Kathleen Kiefer & Charles R. Smith, Improving Students’ Revising and Editing: The Writer’s Workbench System, in A WRITER’S TOOL, supra note 8, at 65; WILLIAMS, supra note 8, at 74-77.

87. There is anticipation that such capabilities will be significantly expanded beyond mere “technical” assistance to provide guidance in the essence of creative activity. “The wave of the future ... is the development of subprograms that support 'top-
ception has eliminated the careful attention to fine details that was necessary when they knew that no one—or nothing—was going to do these tasks for them. 88

Now, students may—and do—leave such chores to the machine. This leaves the obvious errors that spell checkers 89 and grammar tools 90 cannot detect. It also leads students to neglect the final cover-to-cover editing that is essential for a polished final product. 91 There are also inherent technological limitations in many of these programs.
that inhibit their use as effective teachers or editing assistants.\textsuperscript{92} This is particularly true of the grammar and style tools.\textsuperscript{93} Finally, for poorer writers, having such artificial assistance available may eliminate their incentive to learn spelling\textsuperscript{94} or grammar skills.\textsuperscript{95}

A particularly dangerous pitfall of the word processor is the way in which it can easily foster verbosity and encourage student writers to be less selective in choosing what to feed into a document:

The light touch of the computer’s keyboard, the small scale of its screen, its refusal to interrupt you at the end of a page, all encourage you to write without stopping and to write more than ever before. Prose tends to be convincing when you know ten times more than you write; a computer gives you courage to write more than you know.\textsuperscript{96}

Such “courage” is not a bad thing; indeed, the inspiration of courage in a writer is perhaps one of the most beneficial features of electronic writing tools.\textsuperscript{97} Nevertheless, because a word processor makes it simpler to generate text than it otherwise might be,\textsuperscript{98} it can foster a tendency to ramble\textsuperscript{99} and reduce the quality of student prose.\textsuperscript{100}

\begin{itemize}
\item \textsuperscript{92} See Hobson, supra note 17, at 216 (“The primary educational limitation for computerized grammar checkers and for drill-based grammatical exercises is that they only perform finite operations within tightly-bounded parameters.”).
\item \textsuperscript{93} Technology aside, such tools can only use a “one-size-fits-all” approach to grammar and style that cannot recognize when departure from a particular convention is wise.
\item \textsuperscript{94} See John Thiesmeyer, Should We Do What We Can?, in CRITICAL PERSPECTIVES, supra note 8, at 77 (“Although poor typists may be helped by programs that allow one-keystroke correction of obvious mistakes, poor spellers can scarcely be expected to make consistently correct choices from lists of variants. ... [O]ne key substitution plays to the writer’s weakness—inhaling both the slow growth of spelling competence and any benefits in precision to be gained from incidental exposure to dictionary definitions.”)(citation omitted).
\item \textsuperscript{95} Gerrard, supra note 82, at 99 (“Style analyzers ... can easily be misconstrued as offering a set of artificial rules. ... Attempts to avoid ‘wrong’ words support a mechanistic view of writing as a matter of wending one’s way through a thicket of do’s and don’ts.”); id. at 102 (“Software that corrects errors also deprives students of the opportunity to learn from correcting their mistakes.”).
\item \textsuperscript{96} Mendelson, supra note 55, at 28.
\item \textsuperscript{97} See infra text accompanying notes 127-32.
\item \textsuperscript{98} See WILLIAMS, supra note 8, at 213 (“We have already seen that there are typically more errors in email documents, as writers typically can write more quickly and do not review their text thoroughly. The process of writing may be easier, as there are fewer blocks to writing, but the consequent writing may be less organised and more verbose.”).
\item \textsuperscript{99} See Kelly, supra note 62, at 27 (“The use of the computer sometimes causes prose to become loose and unstructured ...”); Peter H. Lewis, Computer Words: Less Perfect?, N.Y. TIMES, Nov. 1, 1992, at 34 (quoting Frank Conroy, Director of the University of Iowa’s Writers’ Workshop, who observed: “For beginning writers ... there is a tendency to be prolix, which the machine for one reason or another tends to encourage. ... The computer empowers bad writers to more easily churn out a lot of pages.”); Thomas, supra note 28, at 247 (“Students composing on computers tend to write longer texts than they would compose in longhand.”).
\end{itemize}
Additionally, the newest generation of word processors has consolidated the tasks of writing, typing, and publishing. This is beneficial because it allows lawyers to create documents in formal format without the expense and logistical difficulty of hiring outside printers. While students should be taught how to do such complex printing projects, this can easily become a distraction for students who are prone to place form over substance and neglect the hard work of writing itself.

A less tangible and more subtle problem is also engendered by the use of word processors. A sophisticated computer makes writing immediately appear professional and polished because a word processor can easily create a pleasing form for writing. The computer can produce a clean copy with justified margins, sleek typefaces, and centered titles. Unfortunately, this smokescreen of neatness makes it easier for students to ignore the fact that their substance may be lacking or poorly developed. Although the neat, professional output of a

100. This may not be entirely a negative development since it may help writers overcome “writers’ block.” See Glynn et al., supra note 65, at 11:

[S]tudents tend to write longer essays when they write with the aid of computers. . . . One possible explanation for the increase in essay length is that papers that seem to be two full pages in large handwriting become transformed by the computer to about three quarters of a page. Because three quarters of a page does not seem very long to the students, they write more. Another explanation for the increase in length has to do with a technical limitation of the computer screen and word-processing program. Because the students are not able to see the whole essay at one time, the feeling that they have written “enough” is delayed.

In addition, while Noel Williams acknowledges that “[s]ome writers may become more verbose when using word processors,” he, too, does not see this as entirely negative because “text generation [is] itself a process of thinking.” Williams, supra note 8, at 205.

For a similarly ambivalent view of the impact of word processing on verbosity, see Peter R. Stillman, A Writer (and Teacher of Writing) Confronts Word Processing, in WRITING ONLINE, supra note 8, at 20 (“That’s both the blessing and the curse of these word processing devices (or one of many): things get caught in them that would otherwise get away. It is invitingly simple to log random ffltings of thought, to etch them blithely in phosphor and with the blip of a key to store them on a disk.”).

101. See Sullivan, supra note 51, at 43-64 (discussing various aspects of publishing and its relationship to writing).

102. See infra notes 160-62 and accompanying text for a discussion of the many benefits of consolidating writing, typing, publishing, and interactive media.

103. See COSTANZO, supra note 8, at 107.

A printout can make a text look better than it really is. Instead of helping students spot the rough spots in their writing, the professional appearance of “hard copy” may actually prevent them from reading it with a critical eye. Perhaps they have learned to attribute so much authority to the printed word that even their own words seem more authoritative when printed out.
computer has its benefits, this danger of false confidence should be recognized.

There are also many basic writing problems that, to date, word processors have not been able to address. These problems are unlikely to be prevented or deterred by even the most sophisticated word processing program. Noel Williams identifies a dozen writing problems that, in his view, "were missed, or inadequately dealt with, by computer." This rather critical list includes:

1. mastery of the language
2. writing clearly with unfamiliar material
3. getting over writer's block
4. tunnel vision
5. gathering initial information
6. difficulties in organizing information
7. meeting the needs of an audience
8. being too critical
9. not being critical enough
10. frustration
11. difficulties in collaboration with other writers
12. achieving a house style or document design with narrow constraints.

Because these problems are not automatically or easily corrected by computer use, to the extent that technology may create a false sense of security about these difficulties, students should be forewarned.

The proliferation of word processor use by law students also raises two related problems concerning the availability of such technology. First, all students may lack equal access to word processing capabilities. Some may have machines at home; others may not. Some may be at a law school with extensive computer lab facilities; others will not be. While the increasing availability of computer technology will gradually reduce or eliminate this problem, it is still a factor

104. See infra text accompanying notes 133-35.

105. Thiesmeyer, supra note 94, at 86 ("Before computers, student writers might compose a rough draft by hand, mark it up for revision, then polish it while typing the final draft for submission. The word processor's ability to produce clean-looking copy allows today's student to submit what is in effect a rough draft, modified only by a few on-screen changes."). For a more positive spin on this feature, see Valerie Mellotes Arms, Engineers Becoming Writers: Computers and Creativity in Technical Writing Classes, in Writing at Century's End, supra note 8, at 68 ("Students enjoy the 'professional' look of the text and they respond to it with professionalism—that is, they pay attention to the details of spelling and grammar . . . . The legible text makes it possible for them to think more clearly . . . .").

106. Williams, supra note 8, at 200.

107. Id.

108. See Lillian S. Bridwell & Donald Ross, Integrating Computers into a Writing Curriculum; or, Buying, Begging, and Building, in A Writer's Tool, supra note 8, at 117 (describing problems created by "the gap between students who have computers at home and those who rely on [their university] for access.").

109. Practical guidance on increasing the technical capabilities of modern law schools was addressed in detail by Maria Perez Crist in a presentation at the Legal Writing Institute's 1996 Conference, Legal Writing in the Electronic Age: Getting the
that must be considered in planning legal writing assignments. This is necessary to ensure that the products students submit directly reflect their writing ability rather than their access to technology.\footnote{110}

Perhaps more significantly, law students often do not have access to word processors when they write their law school examinations. Paradoxically, for many students the analytical writing upon which most of their course grades will turn may be the only legal writing that they are still forced to do the "old-fashioned" way. Unfortunately, students may not realize the differences between these two types of writing. If it is not drawn to their attention, they may find themselves ill-equipped to readjust their writing style to adapt to the examination setting. This problem is not entirely the responsibility of the legal writing program; however, because this difference in their writing style, ability, and speed may surprise students at examination time, it should be discussed with them as they plan to take their examinations.\footnote{111}

There are significant differences in the process and, indeed, the essential characteristics of writing when it is accomplished via computer rather than with the traditional methods of writing.\footnote{112} Because these differences may lead to writing problems that students might not otherwise have encountered, an effective legal writing program should address these problems explicitly and make students aware of them so that their negative effects may be mitigated.

IV. THE PROMISE OF "TECH-PROSE"

Rather than dwell solely on the negative impact computers may have on legal writing, a more realistic approach recognizes that the

\footnote{Tools We Need—A Strategy for Innovation Among Tight Budgets and Technophobia (July 19, 1996) (outlining strategies for integrating technology into legal writing programs) (summary of presentation available at the University of Nebraska Law College Library).}

\footnote{110. Naturally, this is impossible to control for entirely. However, as suggested in Parts IV and V of this Article, there are ways to mitigate the differences in the products that are generated by differing types of technology.}

\footnote{111. I am grateful to Professor Ruth McKinney of the University of North Carolina School of Law with whom I have discussed this issue and from whom I have received some insights on this problem.}

\footnote{112. See Cynthia L. Selfe, Redefining Literacy: The Multilayered Grammars of Computers, in CRITICAL PERSPECTIVES, supra note 8, at 7 ("[A] reader of screen text lacks some of the spatial-contextual cues to which a reader of page text has access. A reader of a book can gauge its length at one glance and get an idea of format, organization, and arrangement by flipping through pages. In contrast, the reader of a virtual text on a collection of screens can see the whole text only in his or her mind. . . . [M]ovement through a virtual text is often considered more difficult than movement through a printed text . . . .").}
same technology that can harm prose may also help it.\textsuperscript{113} Indeed, it is often the very same technological feature that is both good and bad depending on context and on whether that feature is being used or abused. Thus, the task of effective legal writing programs is not only to ensure that students avoid pitfalls, but also that they are prepared to take advantage of all the ways in which a computer may improve the writing process or the written product.\textsuperscript{114} Further use of technology in legal writing is inevitable. Hence, it behooves legal writing programs to be aggressive in teaching students how to recognize the benefits that can come with new technology and prepare them to use this technology advantageously both as students and in practice.\textsuperscript{115}

Perhaps the thing that computer-assisted writing can do best is demonstrate to students the process-oriented nature of writing.\textsuperscript{116} Although it is tempting to focus on legal writing solely as the creation of a written product, it is very much a process as well.\textsuperscript{117} The word processor provides a vehicle for students to "think on paper" (or "on

\textsuperscript{113} For an expression of this optimistic view, see Allen & Saxon, \textit{supra} note 1, at 384 ("There should be little question that any innovation in legal education that has a significant impact upon the quality of legal writing truly deepens legal education.").

\textsuperscript{114} For a discussion of the ways in which college composition teachers might be introduced to the role of computers in their writing classrooms, see Deborah H. Holdstein, \textit{Training College Teachers for Computers and Writing}, in \textit{CRITICAL PERSPECTIVES}, \textit{supra} note 8, at 126-43.

\textsuperscript{115} Such knowledge will also assist students in being more efficient in the billable-based world of legal practice. \textit{See} Fran Shellenberger, \textit{When and Why Lawyers Should Type}, in \textit{SECTION OF LAW PRACTICE MANAGEMENT}, \textit{supra} note 21, at 124 ("Lawyers using word processors are accomplishing more than typing; they are also drafting and editing at the same time, reducing the turnaround time required to produce mailable drafts.").

\textsuperscript{116} \textit{See} COSTANZO, \textit{supra} note 8, at 88:

\begin{quote}
Since the early 70s, composition theory has shifted attention away from writing as a product to writing as a \textit{process}. This means that instead of focusing on the problems and triumphs of a completed paper, teachers work with their students on the act of composing essays, from beginning to end, emphasizing strategies for exploring, developing, and revising ideas. Typically, these teachers speak of prewriting . . . , writing . . . , rewriting . . . , editing . . . , and proofreading . . . , while stressing that such activities often occur recursively rather than sequentially. This approach to teaching writing is far from mechanical, yet its proponents are among the most enthusiastic users of word processing. They recognize that word processing involves students in the writing process in significantly new ways.
\end{quote}

\textsuperscript{117} The notion of writing as a process has recently received attention in the literature of legal writing. \textit{See} Markman, \textit{supra} note 46, at 559 ("Some thinkers in the legal field have joined journalism educators in calling for more of a focus on process. They encourage the legal writing community to begin embracing writing as a process, not just an end product.").
screen") as their thoughts develop.\textsuperscript{118} The fluidity of the written product created on a computer assists them in this process.\textsuperscript{119} For a good typist, writing on a computer is quick. Thus, students' thoughts may be recorded swiftly in the developing document. This demonstrates that writing is not merely generation of a final product, but also that it is a thought process.\textsuperscript{120}

Therefore, use of the computer as a writing tool has distinct advantages if a legal writing program is focused on process.\textsuperscript{121} It may also convince students to think about writing as a process and make them more reflective as they write.\textsuperscript{122} This can be enhanced by the word processor's ability to red-line the evolution of the paper through its successive drafts.\textsuperscript{123} Because the computer makes generating new drafts of a student's paper more simple as a mechanical matter, this may have a helpful impact on the interactive pedagogy that a legal

\begin{itemize}
  \item This may also affect the way in which students think about writing and editing—
  a change in perception that may also require some rethinking of the way in which
  the teaching of writing is approached. \textit{See Knapp, supra note 8, at 6:}
  
  What's particularly interesting in this study is that students composing
  on a word processor made 91 percent of their revisions as they were
  composing, compared to 75 percent when using pencil and paper. This
  indicates that with a word processor, student writers are more likely to
  play around with the wording of their sentences and watch the meaning
  evolve as they write. In this way they begin to see language as malleable,
  and composing and revising become more closely integrated within
  the writing process, rather than always isolated into separate stages.
  \textit{Id. (citing Kay Butler-Nalin, Process and Product: How Research Methodologies
  and Composing Using a Computer Influence Writing (1995)(unpublished Ph.D.
  dissertation, Stanford University)).}
  
  \item See William Costanzo, \textit{Reading, Writing, and Thinking in an Age of Electronic
  Literacy, in Literacy & Computers, supra note 8, at 11 ("Anyone who has written
  with a computer knows that language on the screen seems different. . . . It
  seems more fluid, more akin to the flickering of light than to the fixity of print.
  The effect stems partly from the ease of electronic alterations, the ability to make
  words dilate, disappear, or dance across the screen.").}
  
  \item See Montague, supra note 8, at 23 ("No longer is writing viewed as a simple,
  linear activity consisting of several stages that are independent and temporally
  sequenced. In contrast, writing is now recognized as a complex, integrated set of
  processes that are interactive and recursive. The [old] model has been replaced
  by more substantive models that reflect the interdependent nature of thinking
  and writing.").
  
  \item See Tuman, supra note 8, at 12. In describing the dynamic quality of a text on
  the computer rather than on paper, Tuman remarks, "[t]he text is transformed from
  a fixed entity to something constantly shifting." For a general discussion on the
  process of writing see John B. Smith & Marcy Lansman, \textit{A Cognitive Basis for a
  Computer Writing Environment, in Computer Writing Environments, supra
  note 8, at 17.}
  
  \item See Gail G. Womble, \textit{Revising and Computing, in Writing On-Line, supra note 8,
  at 76 (observing that, among high school students, "the word processor helps students
  become more aware personally of writing as a process. They are able to
  articulate clearly and decisively the process they follow.").}
  
  \item See Burnham, supra note 16, at 303-04.
\end{itemize}
writing teacher can use. Because responding to critique is less burdensome than it was prior to computer use, students will be better able to integrate that critique into their work. Thus, the word processor can be an important asset in making rewrites and edits integral parts of the legal writing course and it can facilitate the use of more rewriting assignments.

On a related note, because text is easier to generate on a word processor, the volume of writing students can now do is likely to be

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124. In addition, as Professor Pratt points out, double or triple-spaced drafts with wide margins can be generated easily by computer. See Pratt, supra note 49, at 153-54. This simple mechanism can make it much simpler to generate useful revision drafts for editing in hard copy.

125. See Knapp, supra note 8, at xiii:

[Television] Teachers traditionally treat writing as a single-draft process—students pass in papers, teachers read and grade them, pass them back, and that's it until the next paper is assigned. Few teachers regularly require students to revise and rewrite second and third drafts of their papers, largely because recopying or retyping revised drafts is a long and boring task—certainly too time-consuming to use up precious class time. As a result, the whole editing and revising phase of writing that professional writers claim is so vital, has received little attention or value in school.

See also Burnham, supra note 16, at 289 ("The chief advantages of word processing over these methods [use of legal pads or dictation] are flexibility and higher standards of excellence. The computer facilitates legal thinking. Most lawyers do not proceed linearly from one step to the next, but engage in a conversation with a draft, circling back and forth. . . . When changes are easily made, you will find yourself less often saying, 'It's good enough.'").

126. Literature in legal writing has suggested the benefits of rewriting. See Markman, supra note 46, at 560 ("Assignments should allow for revision, interchange, and thinking aloud. Writing teachers could forgo a lengthy memorandum or brief for several shorter documents to allow students to work on more drafts within the same limited amount of time, and to see writing as a process rather than just an end product.").

127. See Glynn et al., supra note 65, at 10 ("In the computer-assisted writing classes . . . instructors ask students to revise essays repeatedly without having to feel guilty for making students go through the physical and mental drudgery of recopying an entire essay by hand. By freeing students from the mechanical burdens of recopying, the word processor promotes a writing environment in which revision becomes easily accomplished."); Monroe, supra note 8, at 2 ("Because words are so easily moved and removed from the screen, the student is not as stubborn about editing his or her writing. Changing something simply is not as laborious as it used to be."). This ease may lead to "more willingness on the part of students to revise text." McKenzie, supra note 8, at 20 ("According to the students, their writing improved because they used computers for writing and revising. . . . Having to retype 20-page drafts through four revisions and then reproduce them on a ditto machine for the group to read probably would have turned this successful writing project into an impossible nightmare."); Elizabeth A. Sommers, Integrating Composing and Computing, in Writing On-Line, supra note 8, at 3, 6 ("Microcomputers used as word processors may help writers a great deal when we ask them to revise. Writers are freed from the drudgery of typing and retyping draft after draft and they're more willing to give revision a try with microcomputers.").
greater than that done with pen, paper, or typewriter. Undoubtedly, quantity of writing is no guarantee that quality of writing will improve. However, because many students come to law school with less writing experience than is desirable, anything that encourages more writing practice is likely to lead, albeit indirectly, to better writing. At the very least, the word processor has been credited with assisting writers in overcoming the writer's block that may hinder their writing ability. At the extreme, "[s]ome writers wax rhapsodic over the alliance between keyboard and phosphorescent screen that frees their inner speech." In addition, the way in which a word processor generates polished text may assist students in editing. While the neat appearance of the text on screen or in hard copy has some dangers, it also has benefits. Because the printed text appears in impersonal, standardized type rather than in the writer's own handwriting, there is more dis-

128. See Montague, supra note 8, at 46 ("There is general agreement that writers who compose on the computer write more than those who use pen and paper or typewriters. Quantity of writing, then, appears to increase as a function of word processor use."). (citation omitted); Glynn et al., supra note 65, at 10 (citing results of survey showing that students with little word processing experience spend up to 76% more time revising their work when they compose with computers); Hawisher, supra note 64, at 52 ("[M]any students write longer pieces with word processing than with traditional methods."); Williamson & Pence, supra note 65, at 98 (discussing study indicating that "when student writers use word processors, they compose longer texts that have fewer mechanical errors with linguistic forms than when they compose by hand.").

129. Indeed, this is closely related to the problem of verbosity. See supra text accompanying notes 96-100.

130. See infra note 205.

131. See Glynn et al., supra note 65, at 12 ("The lessening of writer's block [when writing with a word processor] may be due to the ease of deleting or backspacing over words, which makes writing seem less permanent, and thus less threatening."); W.M. Reed, The Effects of Computer-Based Writing Instruction and Mode of Discourse on Writing Performance and Writer Anxieties, 6 Computers Hum. Behav. 211 (1990). Writer's block should not be underestimated. See Kellogg, supra note 63, at 66 (citing study results indicating that "getting started is judged to be difficult by all writers and is viewed as the single most difficult part of writing by 30% of academic writers.").

132. Costanzo, supra note 119, at 14 (citation omitted).

133. See supra text accompanying notes 103-04.

134. See Montague, supra note 8, at 40 (commenting that among young children writing with computers, "[t]he professional appearance of the paper motivates young writers and makes them proud of their work.") (citation omitted). Whether this is still true for the older, less impressionable law student is unclear. See also id. at 47 ("The neat appearance of text composed and revised on the word processor is a positive feature of word processing, particularly for individuals who have poor handwriting and whose writing is characterized by frequent mechanical errors. . . It is more gratifying for writers to present a good, legible copy for peer review than a paper with corrections in the margins and between lines."); Cynthia L. Selfe, The Electronic Pen: Computers and the Composing Process, in Writing On-Line, supra note 8, at 58 (describing study in which several partici-
tance between the writer and his work. This creates a beneficial detachment between writer and writing, making it possible to edit more impartially than is likely with a handwritten draft.\(^{135}\) A clean polished copy of the text is also easier to work with than one that is scribbled over with margin comments, relocated paragraphs, and crossed-out sections.

Use of the computer as a writing tool also invites creative classroom teaching in legal writing programs.\(^{136}\) Often, one of the most challenging aspects of teaching legal writing is making effective use of class time to teach technical writing skills. This is particularly difficult in a large class with little chance for individual attention. However, new writing technology allows many creative opportunities. For example, with the use of a computer and a large screen, a teacher can work with a group of students to create a written product in the classroom, allowing them to see a piece of writing develop.\(^{137}\) Such an activity involves more students in the exercise, directs attention away from a straightforward lecture approach, and demonstrates the way in which a single issue may be addressed effectively in different writing styles.

The electronic age also fosters more creative methods for feedback.\(^{138}\) No technology can replace the value of a well-planned indi-

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135. See Costanzo, supra note 8, at 106 (“Several observers have emphasized the power of the screen to ‘decenter’ inexperienced writers. . . . For writers who fail to see how their words might be misinterpreted by others, decentering helps them look at what they’ve actually written instead of what they think they’ve written.”); Costanzo, supra note 119, at 14 (“[O]ther writers note a distancing effect. They emphasize the power of the screen to ‘de-center’ writers from their texts by altering the text’s appearance through various formatting or fonts.”).

136. See infra notes 211-14 and accompanying text for examples of creative teaching methods facilitated by new technology.

137. See, e.g., Montague, supra note 8, at 41 (A computer in the class “can be used to demonstrate planning, drafting, and revision processes as students give ideas to the teacher who types them on the computer keyboard. Projection on a large screen enables whole groups to work together to plan stories or other types of compositions.”); Rodrigues & Rodrigues, supra note 24, at 16 (“With a large screen monitor or video data projector, you can demonstrate to a class how a draft can grow and change in the process. . . . Such a demonstration not only illustrates how easy it is to make changes, but also how painless it is to erase the words and start over.”); Michael Spitzer, Local and Global Networking: Implications for the Future, in Computers & Writing, supra note 8, at 60 (“In a networked classroom, the passage to be revised can be broadcast to the screen of every student in the class. After reading the passage, the students can discuss the text—in writing—and work on revising it. . . . The written work is available instantly for all to see, and transcripts of the written discussion can be printed out for later reference.”).

138. The quality of written feedback is particularly important in the legal writing context because it forms such a large part of the instructor’s teaching. See Ramsfield
vidual conference in which a trained legal writing teacher provides detailed instruction about a student's strengths and weaknesses. However, the electronic age can supplement this with several new forms of feedback. For example, instructors may request that assignments be submitted on a disc, enabling them to imbed comments directly in the students' writing. This allows instructors to make comments as concerns arise, to do so neatly, and to employ "macros" that permit consistent and efficient comments on common errors.

In addition, word processing can make available other editors besides the instructor. The use of "metatext" can allow students to make side-comments on their own work so that they become more conscious of their own thought processes as they train themselves to be their own editors. Beyond that, by networking computers in the law

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139. See WILLIAMS, supra note 8, at 151 for a description of a writing instructor's grading process:

[Those essays never leave the computer for assessment. Instead, he gathers them together on disk, takes the disk to his own computer and marks them within his own word processor. Within the word processor he has macros (small, custom made programs which can be run at a single keypress) which he can run to insert standard comments into the student's text. This means that comments are accurately placed, easy to read for the student . . ., contain the same amount of detail each time the comment is made (so there is no variation with the fatigue of the marker), are uniform across different essays and, most important for the tutor, take very little time to insert. In consequence the student receives a fuller critique than s/he would through conventional marking and the tutor works more efficiently and at his or her convenience.

Spitzer, supra note 137, at 62 ("If the students are writing in a networked environment, the teacher can intervene while the text is being created, when students are most receptive to advice and when that advice can do the most good because it can be adopted and applied instantly."). See also Marilyn M. Cooper & Cynthia L. Selfe, Computer Conferences and Learning: Authority, Resistance, and Internally Persuasive Discourse, 52 C. ENG. 847 (1990); Thomas DeLoughnay, Seeing a Student's Text as It's Being Created, CHRON. HIGHER EDUC., Nov. 23, 1988, at A15; RODRIGUES & RODRIGUES, supra note 24, at 37-40 describing computerized conferences about writing; William Wresch, The Challenges of Creating Networked Connections among Teachers and Students, in LITERACY & COMPUTERS, supra note 8, at 186-91.

For discussion of an interesting experiment in which a college composition course was conducted entirely through electronic communication, see Edward M. Jennings, Paperless Writing: Boundary Conditions and Their Implications, in WRITING AT CENTURY'S END, supra note 8, at 11-20 (reporting ambivalent feelings about the "paperless" class).

140. In addition, computers can be used to assist legal writing faculty in conducting student conferences. The benefits of doing so were explored fully in Richard Risman's presentation at the Legal Writing Institute's 1996 Conference, The Use of Computers As a Visual Aid in Student Conferences (July 18, 1996)(summary of presentation available in the University of Nebraska Law College Library).

141. See WILLIAMS, supra note 8, at 55 ("[Metatext] [is used] to comment on the text they [writers] are currently writing, providing notes to themselves about the task
peer critique exercises may be developed to assist students in critiquing each other's written work. This provides the perspective of multiple critics. It is also a useful exercise in editing and critique. By performing these tasks on a peer's work, students should become better able to edit their own product.

Such exercises also help teach collaborative writing. Collaboration is more common in legal practice than students' academic experiences may suggest. Very often, a lawyer—particularly a new lawyer—will be asked to write a portion of a brief, or to make an initial draft of a letter that others will edit, or to update research memoranda initially written by colleagues. There is very little in most students' experiences to prepare them for this type of writing. Hence, collaboration training in the legal writing classroom would be valuable. Natur-
rally, to serve this purpose, collaborative exercises must be well-planned.\textsuperscript{146} If done effectively, they will provide good practical training for a large part of students' future work.

On a broader scale, networked computers can allow many students at several law schools to have access to the same documents as they are being written. If students are encouraged—or requested—to have one of their documents available to all users on a network, these law student writers will have an audience for their work.\textsuperscript{147} Writing is often a lonely pursuit without an audience. However, having real readers available to respond to a written product can improve writing

\textsuperscript{146} For a full discussion of the quality of peer discourse in composition classes, see, e.g., Ann Hill Duin & Craig Hansen, \textit{Reading and Writing on Computer Networks as Social Construction and Social Interaction}, in \textit{Literacy \& Computers}, supra note 8, at 99-112. As Duin and Hansen note, the relationships among students providing critique are complex and may not always lead to the direct or relevant feedback that is most useful for the improvement of writing. \textit{Id.}

\textsuperscript{147} See, e.g., \textit{Literacy Online}, supra note 8, at 84:

Whereas earlier educators may have seen computers as a means of increasing our students' ability to produce better individual documents through the use of word processing, prewriting, revision, spell-checking, style checking, and desktop publishing . . . , educators today are increasingly thinking of computers in terms of local and wide-area networks . . . . The new networking technology is important, not in providing us with greater power in composing individual texts, but in providing us with the opportunity to communicate through reading and writing immediately with other people in situations similar to ours, or in providing students with the opportunity to communicate in real-time with each other, rather than with their teachers.

See also Betsy A. Bowen, \textit{Telecommunications Networks: Expanding the Contexts for Literacy}, in \textit{Literacy \& Computers}, supra note 8, at 113-29 (discussing sharing of written work through network systems); Hugh Burns, \textit{Teaching Composition in Tomorrow's Multimedia, Multi-Networked Classrooms}, in \textit{Re-Imagining Computers}, supra note 8, at 115-30 (also discussing promise of networking capabilities for teaching composition); Costanzo, supra note 119, at 14 ("In a computer lab, the displayed image invites collaborative writing and peer review. Writing is not so much a solitary act as a gesture of communication. Teachers and researchers alike have commented on the social nature of electronic writing, linking it to the pedagogy of cooperative education."); Gail E. Hawisher, \textit{Electronic Meetings of the Minds: Research, Electronic Conferences, and Composition Studies}, in \textit{Re-Imagining Computers}, supra note 8, at 81-101 (discussing, generally, use of electronic conferencing in teaching of writing and interaction among student writers).
quality and the incentive to generate a good product. Students may become better writers as "remote audiences mean a more realistic writing context than that provided by either the immediate but captive classroom audience or . . . [a] vague future audience."

A less tangible benefit of "tech-prose" is that students may enjoy writing on a computer more than writing in the traditional way. Naturally, the better their typing skills, the more they will enjoy such writing. Writing with a word processor has been touted as increasing the confidence of reluctant writers, enabling them to write more

148. See Lewis, supra note 99, at 34 (quoting Fred Kemp, director of composition at Texas Tech University, who observed, "The way to really get writers writing well is to get them engaged and interested, and that means getting them readers . . . . Networks produce readers for our writers.").

149. Don Payne, Computer-Extended Audiences for Student Writers, in WRITING AT CENTURY'S END, supra note 8, at 24.

150. See LEBLANC, supra note 23, at 6 ("Most students are highly motivated to write with computers, good effects or not."); Glynn et al., supra note 65, at 13 (surveying 116 undergraduate English composition students and finding that "about 45% said they liked writing more [with word processors], 4% said less, and 51% said about the same."); Williamson & Pence, supra note 65, at 98-99 (summarizing survey result indicating that "students enjoy writing by computer more than they enjoy writing by hand.").

Given that students today are much more accustomed to computer use throughout their experience, they may be much more likely to be enthused by the use of the machine than their recent predecessors and thus enjoy working more with this technology as part of the writing process. See WILLIAMS, supra note 8, at 136 ("The most common reaction [to the computer] is enthusiasm. Many adults surprise themselves with their own interest and excitement over the computer. . . . They develop skills and knowledge for their own sake, because they enjoy using the machine, because they enjoy the process of learning and of controlling the computer and because they want to improve their writing."). But see Thiesmeyer, supra note 94, at 87 ("Subjective assessments of word processors cannot be taken as objective measures of worth. . . . There is little doubt that for many writers, computers have rendered the climate in which they compose more salubrious. But such feelings do not constitute them more competent than they would have been otherwise.").

151. See WILLIAMS, supra note 8, at 201 ("Operating efficiently at a keyboard requires either a long period of training to acquire the requisite skills, or an even longer period of habituation to develop personal habits of keying. Having to hunt and peck for the keys you need can be a severe disincentive to many writers wishing to enjoy the benefits of computers.").

152. See COSTANZO, supra note 8, at 88 ("Writers often report that the computer gives them a new feeling of control over written language. Words seem to leap from the mind to the screen, where they can then be prodded into new patterns of meaning."); id. at 102 ("The strongest effect of word processing seems to be its general effect on students' attitudes. Researchers and practitioners commonly report high levels of enthusiasm among new users, whatever the measurable impact on their writing."); KNAPP, supra note 8, at 4 ("An added bonus for students is seeing their final papers look so professional. This alone is an ego boost that spurs them to work hard and be prolific with the word processor."); Arms, supra note 105, at 64-65 (discussing positive impact of computer on student attitudes toward writing); Bridwell & Ross, supra note 108, at 111 (reporting result of study in which
expressively, and with greater ease. Given that many students approach their legal writing course with trepidation or negative bias, this can only help their work.

In addition, new word processing software includes features that can assist the legal writer in ways that traditional writing tools could not. While the "crutches" built into many programs may have the detrimental effects discussed earlier, they can be helpful if students are properly trained. Various features of the word processor may allow a legal writing instructor to refocus attention on crucial areas of analysis rather than address more time-consuming but relatively simple problems. For example, "the computer can identify possible errors in spelling and punctuation and even indicate possible overuse of passive voice and nominalizations. It can free teachers to encourage the exploration of ideas and the style best suited to communicate those ideas to a particular audience." These features might also be customized by an instructor working with a student. For example, if a student can identify a particular problem, a good word processing program should be able to search for that problem and highlight it for the student's correction. Similarly, if a student has difficulty in achieving "plain English" when writing legal documents, a "readability in-

"80 percent [of students surveyed] thought that using the computer improved their writing. None of the students thought it made their writing worse."

Hawisher, supra note 64, at 52 ("Students seem to have positive attitudes toward writing and word processing after working with computers."); Kelly, supra note 62, at 27 ("[C]omputers encourage risk taking at all stages of the composing process . . . .").


There is also evidence that a word processor might be of particular help to the student for whom English is a second language. See Montague, supra note 8, at 116-18; Hobson, supra note 17, at 218 ("While compositionists, by and large, with a few notable exceptions, have not explored the issues of why and how one might incorporate the computer as an instructional tool for mastering a new language . . . foreign language educators are exploring both the practical and theoretical implications presented by the current and evolving computer technologies."); Donald T. Huffman & John R. Goldberg, Using Wordprocessing to Teach ESL Composition, 15 System 169 (1987).

155. See, e.g., Montague, supra note 8, at 48 (touting benefits of "windows" programs for effective writing); Hawisher, supra note 64, at 52 ("[S]tudents exhibit finished products that have fewer mechanical errors than those written with traditional tools.").

For a full discussion of the features available in modern word processing programs, see Burnham, supra note 16, at 290-94 and Williams, supra note 7, at 57-64.


See Burnham, supra note 16, at 290 (discussing use of computer searches to root out particular writing problems such as legalese, ambiguity, inconsistency, etc.).
Use of a word processor in the legal writing course also allows students to expand their notion of legal communication. Naturally, the focus should remain on traditional writing and analysis since prose is still the primary vehicle for formal legal communication to courts, clients, and adversaries. However, with increasing computer capabilities, legal writers now have access to programs that not only allow them to do desktop publishing, but also to teach non-traditional communication. A legal writing course might become a place for teaching nontraditional communication involving graphics, sound, or other more interactive media. While the written word is still central in 1997, developing digital technology will no doubt require that the next generation of attorneys be prepared for new methods of effective, efficient communication.

The use of the word processor is also crucial for legal drafting assignments. While the traditional first-year legal writing course may not involve much training in drafting, the word processor and

159. *See id.* at 293 (discussing readability statistics and their usefulness *vel non* in achieving plain English).

160. For a discussion of the benefits and costs of desktop publishing, see Williams, *supra* note 8, at 189-98.

161. *See Tuman, supra* note 8, at 112. ("The persuasive force of an argument (or message) is immeasurably enhanced by the effective mixture of graphics, animation, and sound with text... We are at the beginning of a new age of multimedia computing."); *Winning the Information Revolution*, A.B.A. J., July 1995, at 66 ("Word processors of the next generation will combine images, they will index, provide line entries, [link] you to a particular text, do text retrieval. It will all be within the definition of what a word processor is.").

162. For a discussion of the need to view legal communication in this broad way, see Roberta Cooper Ramo, *The Changing Practice of Law in an Electronic Environment*, N.Y. St. B.J., May/June 1996, at 12:

Lawyers often think of technology in too narrow a frame. We think of technology in terms of computers and word processing because words are what we like to deal with, especially the written or printed word. We can look at computer screens and immediately see what we've done and do what lawyers have always done, manipulate words. However, by focussing on words lawyers have failed to embrace much of the television-type technology that has most changed the world. This type of technology allows us to share one another's experiences in both a visual and oral way, in an immediate time frame that really has made our expectations of the world very different.


164. *See generally* Silecchia, *supra* note 45 (discussing scope of coverage in first year legal skills courses); *see also* Ramsfield & Walton, *supra* note 60 (reporting survey results indicating that only 21.2% of reporting law schools required "drafting doc-
document assembly programs are extremely valuable. Thus, a legal writing course is a good opportunity to explore the benefits of using or reusing a form document. For example, in legal drafting, practicing attorneys often reuse documents or "cut and paste" together pieces of prior documents. Naturally, this has benefits both in time saved and in the certainty achieved when a solution that previously succeeded is reused. Thus, students should learn how to take advantage of these benefits. Form documents served this same function long before the computer age, but because the computer makes it much easier, drafting should be taught with particular attention to the computer's impact.

Hence, the advent of "tech-prose" holds much promise for those writers who are prepared to master it for their best advantage and legal writing courses can provide a good opportunity for students to begin this mastery.

V. ADAPTING LEGAL WRITING COURSES TO THE ELECTRONIC AGE

The computer age's influence on legal writing has the potential for good and bad. This is typical of most new technology. Indeed, when he was first introduced to the humble typewriter, Mark Twain reportedly remarked:

165. See Rees W. Morrison & G. Wynn Smith, Jr., Document Assembly Programs and Systems, in SECTION OF LAW PRACTICE MANAGEMENT, supra note 21, at 107.

166. See Burnham, supra note 16, at 295-96 (discussing "cutting and pasting" for repetitive computerized documents); Williams, supra note 8, at 63 ("The reusability of electronic text is a great boon to writers.... Each of these changes of use requires further work, adapting the original text... but the savings on time are large compared with producing those texts from scratch."). For an early discussion of legal drafting with computers, see Reed Dickerson, Electronic Aids to the Drafting of Legal Instruments, 1 Rutgers J. Computers & L. 75 (1970), reprinted in Reed Dickerson, MATERIALS ON LEGAL DRAFTING, 326-32 (1981).

167. See David P. Vandagriff, Five Ways to Commit Malpractice With Your Computer, Compleat Law., Spring 1993, at 44. In his piece, Mr. Vandagriff points out the basic danger in using a word processor for creating multiple documents from one master:

Errors can be made by selecting an improper computer form, by inserting the wrong information in the form, or by leaving in or eliminating the wrong paragraphs.... [B]e aware that your comprehension level when you read from a computer screen is significantly lower than when you read from hard copy, so proofreading on screen may be dangerous. For critical documents, always proof on paper.

Id. at 44-45 (emphasis added).

168. The composition scholarship in this area is conflicting. See Hawisher, supra note 64, at 64 ("When a field is establishing itself, its research is inconclusive and... the same ground is covered repeatedly. Studies in word processing and writing are only now emerging from this preparadigm stage of development.").
I am trying to get the hang of this newfangled writing machine, but I am not making a shining success of it. However, this is the first attempt I have ever made & yet I perceive I shall soon & easily acquire a fine facility in its use. . . . The machine has several virtues. I believe it will print faster than I can write. One may lean back in his chair & work it. It piles an awful stack of words on one page. It don't muss things or scatter ink blots around. Of course it saves paper.169

Clearly, Mark Twain did "get the hang of" the technology of his day. Teaching legal writing in the 1990s does not merely provide the opportunity to help students "get the hang of" the new tools available for writing. It also creates a responsibility to teach students to use that technology to improve their writing and, thus, their professional ability.170 Accepting this challenge171 requires adapting legal writing courses to the electronic age.172 To do this effectively requires a number of changes in the way legal writing is approached and in the way course materials are designed for students who will write in a nontraditional way.173 Often, the impact of technology on writing skills has not been considered because "[s]o swiftly, almost imperiously, did the computer sweep into the law office that little time was

169. TUMAN, supra note 8, at 1.
170. See Matasar & Shiels, supra note 19, at 913 (saying, of technology generally, that "[t]he challenge for law schools is to find ways to optimize students' legal education by employing the appropriate technological tools"); Thomas, supra note 28, at 246 ("[T]oday a lawyer who does not have the ability to interact with a computer directly is at a serious disadvantage. Law schools should be sure that their students gain basic computer competence. . . .").
171. And a challenge it is! For an optimistic view of this challenge, see David J. Maume, Jr. & Ronald W. Staudt, Computer Use and Success in the First Year of Law School, 37 J. LEGAL EDUC. 388, 389 (1987) ("We believe that the power of the computer to capture ideas, stimulate analysis, foster comparison and analogy, facilitate synthesis of concepts, increase communication between faculty and students, store and sort bibliographic material and simulate a complex and random world offers great opportunities to improve legal education.").
172. These challenges were also addressed in Susan Ehrenberg, Computers and Their Effect on Student Learning, presentation at the Legal Writing Institute's 1996 Conference (July 19, 1996) (discussing positive and negative effects of computers on student writing).
173. This challenge is no less difficult for those who teach writing in other fields. One would assume that English/composition teachers, whose career is devoted entirely to the teaching of writing, would not share this lack of background. However, it has been suggested that in the composition profession as well as the legal writing profession, it is difficult to focus on the changing technology and its implications. See Kathleen Kiefer, Computers and Teacher Education in the 1990s and Beyond, in EVOLViNG PERsPEcnvEs, supra note 8, at 117-31 (discussing ways in which writing teachers can be better prepared to assist students with writing and computers); Cynthia L. Selfe, Preparing English Teachers for the Virtual Age: The Case for Technology Critics, in Re-IMAGINING COMPUTERS, supra note 8, at 24-42 (suggesting ways to improve ability of composition teachers to be effective instructors and participants in this technological age).
left, or taken, for steady deliberation about the consequences."\textsuperscript{174} Now, however, it is time for that "steady deliberation."\textsuperscript{175}

The core of this new approach must be further study and analysis of the differences that exist between the old way of writing and the new. As understanding of these changes develops, it is imperative to devote instructional time and effort to acquainting students with these differences. While today's law students may be growing up with computer technology, they may not be aware of the fundamental changes that this makes to the way in which writing develops.\textsuperscript{176} Only by exploring these differences can students be alerted to the problems and promises of "tech-prose."

Beyond familiarizing students with the changes that the electronic age may bring to their writing, it is essential for writing teachers to assess the way computers might—or should—change their teaching style\textsuperscript{177} or their use of commercial software.\textsuperscript{178} If a course is concerned primarily with product, then it is relatively easy to ignore the

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\textsuperscript{174} Braithwaite, supra note 21, at 1113.

\textsuperscript{175} There are many issues that may be part of that deliberation. Noel Williams identifies six "big picture" questions concerning the use of computers in writing that may be the basis for such deliberation:

1. Can people cope with the increased information flow around them? In other words, is the increase in writing matched by an increase in reading?
2. Do computers affect the quality of writing? Do people write more effectively using computers, or does their writing become more slapdash?
3. Are there ways in which the computer can make writing more effective or efficient other than facilitating traditional writing processes?
4. Can computers be used to improve the teaching and training of writers?
5. Are there new ways of writing that result from using computers?
6. Do computers create new problems for writers?

\textit{W}\textsuperscript{176}\textsuperscript{illiams, supra note 8, at 3.}

\textsuperscript{176} This may become more problematic as students do less and less writing with traditional tools in their earlier educations. They will be less able to make the comparisons that can be made by those writers who have had substantial experience with both.

\textsuperscript{177} \textit{See} Re-\textsuperscript{178}\textsuperscript{Imagining} Computers, supra note 8, at 4 ("We must do more than learn the new software. We must also try to re-imagine what our classes might look like in the very near future and to contemplate our role as teachers in this new age of virtuality."). On a more expansive level, it has been suggested that use of computers for writing now requires a rethinking of the traditional classroom itself. \textit{See} Charles Moran, Computers and the Writing Classroom: A Look to the Future, in Re-\textsuperscript{179}\textsuperscript{Imagining} Computers, supra note 8, at 7-23 (discussing effective design of writing classrooms in the age of computers).

\textsuperscript{178} \textit{See} Williamson & Pence, supra note 65, at 96 ("Writing teachers must know how the introduction of word processors could change their teaching."). This is particularly true because there is little assistance from the word processing programs themselves as to how to teach their use. \textit{See} Williams, supra note 8, at 82 ("One of the most significant problems teachers have with commercial software is that it is designed without reference to particular pedagogies or classroom practices."
technology that helped produce a student's paper and view such technology as nothing more than an efficient typewriter. However, if a course considers anything other than the finished product, technology has an impact on teaching style that should be considered.179

Course preparation must involve several new aspects as legal writing programs modernize. It was recently observed that, “[p]erhaps the problem for law teachers supervising student scholarly writing is not (at least not yet) that we are crunched in an epochal shift from print to electronic literacy, but rather that our teaching methods have not caught up to yesterday.”180 Traditional background in legal analysis, composition theory, and pedagogical technique is still crucial, as is knowledge of the substantive areas of law used as vehicles for teaching analysis, research, and writing. However, without becoming mere technical assistants, legal writing teachers must become better informed about the technical tools their students are using. “[N]o technological invention in teaching has an effect in and of itself. The manner in which students are introduced to new technology and the manner in which their use of that technology is supported by their teachers has profound consequences for the effects of technology on students.”181

Thus, instructors should learn about the most popular types of software that their students are using and make recommendations as to which are most effective and least likely to exacerbate writing problems.182 An active role by instructors can insure that the software is helpful in the course,183 rather than a detriment or an ineffective “fancy typewriter.”184 In fact, for sound reasons, a legal writing teacher might decide that a specific program is particularly useful

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179. In a related way, the new technology may also change the way in which legal writing teachers conduct their own scholarship. See Peter W. Martin, How New Information Technologies Will Change the Way Law Professors Do and Distribute Scholarship, 83 LAW LIBR. J. 633 (1991). This change in their own working habits can be extremely helpful in ensuring that they are aware of what their students will be experiencing.

180. Fajans & Falk, supra note 59, at 342.

181. Williamson & Pence, supra note 63, at 120.

182. See, e.g., MONTAGUE, supra note 8, at 119-38 (discussing evaluation of writing software for educational uses); Selfe, supra note 8, at 24-42 (discussing goals for writing teachers in electronic age, with heavy focus on learning about new and available technology).

183. See Forman, supra note 143, at 66.

184. Barker, supra note 91, at 12. See also id. (“Well-prepared teachers can make a significant difference in the success of computer use. . . . [W]riting teachers should be comfortable with the tool.”)(citation omitted).
in teaching legal writers and might use that program in class or recommend it to students who have particular needs for it.\textsuperscript{185}

In addition to software, it also behooves legal writing teachers to become familiar with computer systems more generally. A basic familiarity with the differences among systems is crucial since the computer technology itself (specifically the type of computer one uses) may have a significant impact on the quality of what one writes.\textsuperscript{186} At a minimum, a good teacher should be able to discuss a student's choice of technology in a conference and assist the student in understanding how the written product or process was affected by that choice.

Unfortunately, the technology used for writing keeps changing\textsuperscript{187} and becomes outdated almost as quickly as it is developed.\textsuperscript{188} This will undoubtedly make it difficult for legal writing teachers to remain completely current while continuing to juggle all of their other responsibilities. However, the benefit of doing this will be the ability to assist students in controlling the technology that shapes their prose—rather than vice versa.\textsuperscript{189} Because today's students are more techno-

\textsuperscript{185} Mandating a particular type of software seems unwise. A decade ago when students did not come to law school with significant or long-standing prior experience in any system, this might have been a possibility. However, today's law student has probably been using a particular system through four years of college as well as in high school or on the job. To ask law students to learn a new system and relearn the basics of a word processing system is not a useful way to allocate the scarce amount of time and energy that they have. However, when a student is using a system that has particular disadvantages, it may be wise to point those out so that students will be less affected by them.

\textsuperscript{186} Tuman, supra note 8, at 109 (commenting on 1990 study of Professor Marcia Peoples Halio comparing student writing on Macintosh computers versus student writing done on MS-DOS IBM-compatible machines). For a full discussion of the ways in which the computer system chosen may affect the quality of the written output, see Marcia Peoples Halio, Student Writing: Can the Machine Maim the Message?, 4 Acad. Computing 16 (1990).

\textsuperscript{187} See LeBlanc, supra note 23, at 4 ("While we remain in the transition period between traditional print literacy and electronic literacy, the speed of that transition, if the last ten years are any indication, will be infinitely faster than the hundreds of years that attended the movement from oral to written literacy."); Glynn et al., supra note 65, at 1 ("Already, the word processing programs of five years ago seem like dinosaurs. Some have adapted and evolved into current versions, while others have become extinct. No doubt, many current word processing programs will be viewed as fossils five years from now.").

\textsuperscript{188} Jon Newberry, Status Checks, A.B.A. J., Feb. 1996, at 68 ("Six months. That's about how long computer technology lasts before it is outdated. . . Install software to run your law office more efficiently, and there is a good chance it will be superseded by something better before you and your staff figure out how to use it to its full advantage.").

\textsuperscript{189} Some legal writing teachers have commented that sometimes students have the ability to control their use of technology all too well. See, e.g., Helene S. Shapo & Christina L. Kunz, Winning the Font Game: Limiting the Length of Students' Papers, Perspectives: Teaching Legal Research and Writing, Fall 1995, at 10 (discussing students' use of word processing technology to skirt page limita-
logically sophisticated than even their recent predecessors, keeping pace with them is increasingly important.190

Today's new technology also raises novel professional responsibility issues that should be addressed in the legal writing course.191 Most importantly, students should be taught about the privacy/access issues that affect the security of what they write.192 In the past, access to a written document was confined to the small group of people who were actually in physical possession of the work or a copy of it. The advent of the computer made the document available to anyone with access to a floppy disc or a hard drive. In addition, today's networked communication and the Internet increase the possibility that a lawyer's writing may not be as confidential as it once was. Thus, students should be taught193 about the expectations vel non of privacy that come with their work on a computer and consider whether this might affect the form or content of their writings.194 They should also explore the steps they can take to preserve their clients' privacy interest in their written documents.

190. Fortunately, because computer use has started earlier in students' lives, students arrive at law school with basic familiarity with computers. See supra notes 23-27. Hence, it should no longer be necessary to do any elementary word processing training. The focus of the legal writing program's efforts should be on providing guidance, assisting students in determining the impact that various systems will have, and then, in light of the student's individual strengths and weaknesses, selecting the best tools for the task.

191. Perhaps technology and professional responsibility issues may be incorporated into general instruction on professional responsibility as a part of the legal writing class. See Margaret Z. Johns, Teaching Professional Responsibility and Professionalism in Legal Writing, 40 J. LEGAL EDUC. 501 (1990)(discussing integration of professional responsibility instruction in legal writing course).

192. For a discussion of such issues as the security of and access to computerized information, see Leith, supra note 21, at 45-50; Ramo, supra note 162, at 14 ("Lawyers must think about privacy and confidentiality or we stand to lose our special privilege and the unique opportunities and responsibilities it represents to the clients who tell us their secrets.").

193. One creative way to teach students about confidentiality may be to give students a research and writing assignment involving the problems of confidentiality and breach of security in a law firm network. Such a practical application will make these issues more relevant and give students an opportunity to do research in a rapidly developing new area of law.

194. For additional discussion of the intricate ethical issues involved with computer use, see generally Helen J. Schwartz, Ethical Considerations of Educational Computer Use, in COMPUTERS & WRITING, supra note 8, at 18 (exploring ethical issues such as teacher/student responsibilities, respect for privacy, production of quality software, piracy, distribution of computer facilities, etc.).
In practical terms, there are several ways in which the format and content of the legal writing classes themselves might be changed to accommodate new technology:\textsuperscript{195}:

- For one assignment, require students to "redline" each draft, save all the versions in hard copy, and compare the different results. This will make students more conscious of the ways in which they edit and revise on the computer than they would be if they were able to make changes casually without retaining a record. Consider having students write a short critique of the way in which they approached the revision process. This critique should consider such questions as: What types of changes were frequently made? Were most of the revisions made to add authority, restructure analysis, or reorder arguments? How was "technical" editing of grammar, citation, etc. done? Was editing done on screen or on hard copy? Was the edited paper written in a different sequence than the original paper because of organizational changes made in editing?\textsuperscript{196}

- Recognize that word processors will, for better or for worse, continue to foster the increased use and reuse of documents stored on a computer system and adapted for individual circumstances. While this has its disadvantages,\textsuperscript{197} it is a reality for which students should be prepared. Therefore, consider an assignment in which students are given a "boiler plate" document on a disc,\textsuperscript{198} a set of facts particular to their "client's" needs, and instructions to edit the document to satisfy the client's needs. The ability to implement these suggestions will depend, to some extent, on the technological sophistication of the individual law school and the school's willingness to allocate scarce resources to computer technology. See Elizabeth Sommers, \textit{Political Impediments to Virtual Reality}, in \textit{RE-IMAGINING COMPUTERS}, supra note 8, at 43-57 (discussing practical institutional difficulties for English departments seeking to become technologically advanced).

\textsuperscript{195} Although they do not specifically link this practice to word processor use, Professors Fajans and Falk strongly advocate teaching students... that they do not need to begin at the beginning... Instead, they can start with whatever they find easiest... Once these sections are finished, students should go to the next easiest issue, and then the next. By the time they arrive at the really dreaded material, they will have done a lot of sorting and thinking, and the task may be easier.

Fajans & Falk, supra note 59, at 363. Obviously, it is easier to write "out of order" yet end up with a cohesive whole when writing with a word processor. Thus, it is important to consider order as a key feature of the writing process.

\textsuperscript{196} Supra text accompanying notes 165-68.

\textsuperscript{197} Leases, contracts, wills, corporate by-laws, and partnership agreements, as well as other legal documents, would lend themselves particularly well to an exercise such as this one.
needs as expressed in the facts. These "facts" should require students to make both significant and subtle changes in the document. Although such an exercise lacks emphasis on originality, it will allow students to practice a skill that new technology will require of them.199

- Require that students do at least one project of modest200 length "by hand" without the use of the word processor. This will make them more aware of the ways in which their writing is changed by the computer, changes that may surprise them. This can also help legal writing teachers assess whether poor writers perform better or worse when writing with a computer and identify which problems stem from computer use and which result from poor writing ability. An exercise such as this will also help prepare students for their examination writing which will likely be done manually.

- Vary the type of assignments that students are given so that they include lengthy memoranda, formal briefs, short client correspondence, form pleadings, contracts, etc. Then, ask students to assess whether computer use differed depending on the nature of the task and, if so, where it seemed to be most helpful and least useful.201

- Make discussion of technology a part of individual conferences with students. Because word processors have different impacts on different types of writers,202 it may be difficult to adopt a "one-size-fits-all" approach to class-

199. See Staudt, supra note 20, at 520 ("Networks support the growth of an institutional memory within law firms and more effective use of prior work product by the lawyers of the firm."). See also id. at 516 (discussing benefits of automation for generating repetitive documents).

200. A page limit of three to five pages should be optimal. It allows sufficient space for some analysis to be attempted, but it is not long enough to become unwieldy.

201. Varying the genre of the assignments serves other important goals as well. See Silechilia, supra note 47, at 284-87.

202. See Bridwell & Ross, supra note 108, at 107, 110:

    We have seen a range of ways writers adjust, from those who adamantly retained their paper composing rituals and use the computer only for preparing final drafts to those who are at home with on-screen note-taking, composing, revising, and editing.

    ... If a writer uses many visual cues ... she or he may have difficulty making a computer lacking sophisticated graphics capabilities work as effectively as a legal pad. Furthermore, if the writer composes many chunks of text and then determines their connections as he or she "discovers" the text's structure, the writer may prefer paper for the discovery process, simply because the size of the display screen makes it difficult to see many things simultaneously or in juxtaposition. The person who works out a global plan initially and then "executes" a written text from it makes the fastest adjustment ...
room instruction on legal writing in the electronic age. However, in an individual conference to explore a particular student's writing problems, technology's impact should be assessed. Thus, if a student is particularly verbose, it may be wise to see if this is a function of the ease with which he or she can generate text on a computer or whether it is a natural flaw in the student's writing style. Conversely, if a student chronically suffers from writer's block, inquire into whether this is because the student is inexperienced with or leery of technology. If a student's paper is littered with careless surface errors, explore whether this is caused by blind over-reliance on the word processor's editing "skill."

- Include training in several new types of writing that the electronic age has spawned for legal writers. Beyond the writing projects usually covered in the legal writing course today, there are new types of writing that students must learn. Electronic mail is now widespread in law offices. It is often a primary means of communication among lawyers and between lawyers and clients. It has the advantages of speed and informality that facilitate rapid direct correspondence, and today's legal writers will use electronic mail a great deal. However, the informality of this medium may tempt writers to be more careless in their writing or to plan less before firing off a written response. This poses a danger for careless

203. See, e.g., WILLIAMS, supra note 8, at 3 ("Faxes, bulletin boards and electronic mail are three examples of electronic communication which facilitate and also affect 'everyday' writing.").

204. See Ramsfield & Walton, supra note 60 (indicating that 43.9% of first year legal writing programs require client letters, 99.2% require legal memoranda, 40.2% require pretrial briefs, 22.7% require trial briefs, 73.5% require appellate briefs, 2.3% require law review articles, 21.2% require drafting documents, 2.3% require drafting legislation, and 16.7% require other assignments).

205. See Charles R. Merrill, E-Mail for Attorneys from A to Z, N.Y. ST. B.J., May/June 1996, at 21 ("E-mail does not require complete sentences or punctuation, and the customary polite preamble and closing pleasantries of a voice call or voicemail may be omitted without affront."); Annie Murphy Paul, On Learning to Write Well, YALE, Summer 1996, at 28 ("In the eyes of many faculty members, the colloquial style favored by users of e-mail and the Internet has atrophied some undergraduates' formal vocabulary and syntax.").

206. This same urgency is often involved in the frequent and common use of faxes: Prior to the advent of fax, a lawyer would ship a document out by mail or overnight courier service and have a day or two to relax on the matter before something came back. With fax, a lawyer ships a document off before lunch and may have a response or a markup back before lunch is over. Fax changed both the methods and tempo of our practice. Paul S. Hoffman, Editor's Introduction to This Issue, N.Y. ST. B.J., May/June 1996, at 10. Hence, at the same time modern legal writing programs are teaching
writers.\textsuperscript{207} Hence, students today must be trained in such informal correspondence and the special challenges it poses for good writing.\textsuperscript{208}

- Consult with the English composition department at the university with which the law school is affiliated.\textsuperscript{209} Many composition theorists have addressed these issues more fully than legal writers have.\textsuperscript{210} These theorists have developed some creative ideas for integrating computers into writing training. In addition to the increased use of computers in providing feedback,\textsuperscript{211} English departments have used voice typewriters,\textsuperscript{212} "blind" writing,\textsuperscript{213} and text-to-voice techniques\textsuperscript{214} to assist students

students the necessity for careful deliberation and thoughtful planning before writing, they now must also teach the art of immediate written response and rapid communication.

\textsuperscript{207} This danger is exacerbated by the fact that "in the absence of voice inflection and facial expression, e-mail messages may be ambiguous and convey the wrong impression." Merrill, \textit{supra} note 205, at 23.

\textsuperscript{208} One way to teach this may be to set up Internet identifications for students and assign a project that requires them to respond to a hypothetical within a short period of time solely via electronic mail. Then, a similar assignment can be given that requires students to address the same issue in a more traditional genre. This will allow them to see the important differences in style and content and highlight any problems with their informal writing abilities.

\textsuperscript{209} For independent law schools with no institutional affiliation, this may provide an exciting opportunity to work with other local academic institutions.

\textsuperscript{210} See \textit{supra} note 8 (citing substantial work in composition theory studying impact of the electronic age on writing process and product).

\textsuperscript{211} See \textit{supra} notes 137-41 (discussing use of computer to provide feedback on students' writing projects).

\textsuperscript{212} See Kellogg, \textit{supra} note 63, at 71 ("[I]t seems likely that listening-typewriter systems will be available if and when the technical problems associated with continuous-voice recognition are satisfactorily solved.").

\textsuperscript{213} In a "blind" free-writing project

[a] student is asked to write freely on a given topic for a short period

... without being able to see the results of the writing.

In other words[,] on a computer writers will type for three minutes and see nothing more than a blank screen. This forces the writers to concentrate on the task of generating material and keeping it as coherent as possible, whilst preventing any interference from the micro-tasks of editing during writing. Because they are not able to see what has been written they cannot review it, so do not interrupt the flow by constantly returning to errors to correct them.

\textit{Williams, supra} note 8, at 46. \textit{See also} Stephen Marcus, \textit{Real-Time Gadgets with Feedback: Special Effects in Computer-Assisted Writing, in A Writer's Tool, supra} note 8, at 120-21 (describing experiment in which "by adjusting the brightness knobs on their monitors, students can eliminate immediate visual feedback," and reporting that this "helped them see how premature editing interfered with their writing, and it brought into sharp relief their own tendencies and compulsions in this regard."); Fajans & Falk, \textit{supra} note 59, at 364 (advocating that "[i]nstead of writing and rewriting one passage, instead of searching for just the right word, the writer just turns the computer screen off and forges ahead.");
in their writing. Many of these ideas may not be practical for large scale classroom use; however, for individual students they may be beneficial.

VI. CONCLUSION

Today is a dynamic and rapidly changing era in which to teach law generally and legal writing in particular. The need for training in the traditional aspects of good writing and sound analysis is as great as ever. At the same time, it has become necessary not only to teach these traditional skills, but also to teach these skills in the electronic age. The reality is that today's law students and lawyers have bade farewell to the legal pad as their primary medium for legal writing. Now, in the age of "tech-prose," legal writing instructors must teach students how to write by teaching them how to use the new technology to their best advantage as legal writing enters the twenty-first century. The age of the word sculptor has arrived.

MONROE, supra note 8, at 4 (describing "invisible writing" and suggesting that this is particularly helpful for "pickier students . . . who are tempted to go back and make changes before discovering what they have to say").

214. The Kurzweil Reading Machine, a text-to-voice device, assists students in their editing. See Elaine O. Lees, Text-to-Voice Synthesis, in WRITING AT CENTURY'S END, supra note 8, at 45-54. Lees suggests that using a computer to "read" a student's paper out loud will assist that student in editing more effectively than traditional visual editing allows.

215. These needs may, in fact, be greater given the widespread view that today's law students are less well-prepared writers than their predecessors. See, e.g., Donald J. Dunn, Why Legal Research Skills Declined, or When Two Rights Make a Wrong, 85 Law Libr. J. 49, 54-55 (1993) (reporting law faculty dissatisfaction with student writing ability); Paul, supra note 205 ("Before he became Yale's 19th President, A. Bartlett Giamatti . . . wrote . . . that too many Yale students . . . 'cannot make a sentence or paragraph, cannot organize a paper, cannot follow through . . . well enough to do college work.' Since then, things may have gotten worse."); Student Writers Falter at Making Their Point, WASH. POST, June 8, 1994, at A3 (describing study showing serious gaps in writing abilities of American students).