reference," and encourage readers to reject unexamined prescriptive rules.

The final section, “On Teaching Technical Writing,” focuses on pedagogical approaches, resources, and philosophies. In “The Prescriptive versus the Heuristic Approach,” John Mitchell and Marian Smith engage in an almost point-counterpoint debate, both sides of which seem carefully constructed. In “A Comparative Analysis of Teacher Resources for an Advanced Technical Writing Course,” Thomas Warren identifies a number of valuable books, mostly from the 1980s, for teaching students about manuals, proposals, visuals, and writing and editing. Warren does not suggest any articles from discipline-specific journals that could form the core of readings in an advanced course, nor does he establish distinctions that are critical for students in advanced courses to recognize and understand. For example, his discussion of visuals does not distinguish between quantitative displays and illustrations, which have decidedly different forms and functions. He certainly might have mentioned important work by Hartley, Tufte, or Willows and Houghton.

Elizabeth Tebeaux’s article, “The High-Tech Workplace: Implications for Technical Communication Instruction,” is a fitting conclusion to the collection. In her forward-looking article, she summarizes the impact of the information age on our definitions of work and communication skills, on our understanding and management of organizational communication, and on our need to recognize the importance of international communication and communication research. She makes eight recommendations ranging from creating an interdisciplinary communication environment to “helping students understand the proper relation between computer literacy and human analysis and perception.”

MLA is to be commended for expanding its publication list to acknowledge technical communication as an important discipline. Because the essays collected in Technical Writing: Theory and Practice provide only an introductory overview, readers can only hope that MLA will follow with other anthologies offering more in-depth and detailed essays.


By Marcia Peoples Halio, University of Delaware

In The Electronic Text, the former Director of the NCTE Commission on Media compiles and condenses major research on computers and language arts and writes a readable analysis of the effects of technology on reading,
Costanzo's investigation process for this book was lengthy and extensive. It began because he noticed a child's fascination with the computer as a tool and a teacher. "Danny" (as Costanzo calls him) has grown up with computers, and they have made a remarkable difference in how he thinks and learns. Danny and his friends recurrently gather around a computer screen, playing with, outsmarting, and arguing with their electronic friend. Intrigued by what he sees happening to these young people, Costanzo decided to go on a quest to know the "other"—the electronic wizard that so fascinates Danny and friends.

First, he looks at the varieties of software and the dispute between "those who want computers to be used for developing basic skills like spelling, punctuation, or decoding words and those who want to place computers in the service of what they consider to be higher-level skills, like solving problems, understanding texts, or organizing thoughts." He explores the development of software for reading and writing from its earliest stages of drill and practice to its current stage of open-ended programs like simulations, communication games, text manipulation tools, and text generating programs, concluding that "no instructional software is likely to be truly effective unless it integrates our knowledge of three basic areas: subject matter, pedagogy, and technology" (3). He assesses the strengths and weaknesses of each type of software, providing descriptions of many of the most notable packages for those who would like to retrace his footsteps. Indeed, the bibliography and the list of software packages attached to Costanzo's first chapter provide a comprehensive overview of software development from early stand-alone packages like TOPOI and TAGI to more current integrated packages like Wresch's "Writer's Helper" and Macmillan's "English Microlab Lab." He also highlights programs that are still in the developmental stage, like IBM's Epistle and Mike Sharples' Boxes, pointing out that "it is important for teachers . . . and for those who create software, or use it, and for those who are concerned about the future of English" to understand the assumptions that have shaped the programs "which are now shaping the way we read and write."

The next stop in Costanzo's journey is "Reading the Electronic Text"; to understand that waypoint, he forays into the various camps of reading research (such as the decoders and the cognitivists) with side trips into concepts such as mental maps. He cites contributions that computer science has made to reading theory, including Roger Schank's work on the importance of "narrative knowledge" or scripts for reading comprehension. In evaluating reading software, Costanzo comes down hard on the "reliance on computer graphics" that can distract children or give them a distorted view of reading. Much of the software for teaching reading involves animations or games where pictures are either tiny and difficult to see or are so lively that they can give children a mistaken view of the inner-directed activity that reading really is. Sometimes, Costanzo concludes, graphics "drive a program
off the instructional track" because they become more important than the
skills they are purporting to teach. But he gives high marks to Frank
Madden's Literature Journal and Helen Schwartz's SEEN, which take "a
more personal approach to reader response." And he forays into hypertext
and the promise and perils it holds for the future, citing Stephen Marcus' Analyzing Fiction Software and projects at Brown University and Carnegie-Mellon. Costanzo closes his exploration of reading on computers with a
discussion of how reading on the screen differs from reading printed texts,
prophesying that texts of the future will be "less sequential, more hierarchi
cal, less continuous, more modular, perhaps less rigorously developmental,
less reflective of the writer's deepest thoughts, more congenial to free-form
exploration, with each part of the territory containing its own insert map, and
ultimately more responsive to the reader" (61).

As Costanzo observes in Chapter 3 on "Interactive Fiction," Danny and
friends are used to writing as they read because they have been using software
that encourages collaboration with the computer. He traces the history of
interactive fiction, starting with the phenomenon of the 1970s, Dungeons and
Dragons, which encouraged readers (players) to create their own characters
and even determine twists of the plot. This software, still extremely popular,
has had wide-ranging effects. It produces writers who are I-centered, writers
who want and need direct involvement in the action, who determine each
twist and turn by their whims and determination. While there are strengths
to that software which creates interactive fiction, Costanzo wonders about
side-effects; for example, what will happen to texts that do not allow readers
to manipulate their content and plots? What will essays and research papers
written by students accustomed to an I-centered manipulation of the text be
like? And what about language? Costanzo worries that "the verbal texture
of these 'electronic novels' does not approach the rich narrative complexities
of traditional fiction," but he hopes that serious writers will become involved
in producing interactive-fiction software, and that tomorrow's software may
enable students "to explore the literary roads not taken with greater fidelity
to the language, cultural climate, and characterization of the original texts"
(85).

In Chapter 4, Costanzo covers the territory most familiar to teachers:
writing with a word processor. But he brings fresh insight to the material. He
investigates the language of documentation (instruction manuals) and how
it reveals critical assumptions about the program developers' views of
writing; he emphasizes that writing on a computer is very different from
writing without one, since "the abstract process of thinking with words
appears to take on physical forms." He cites the physical dimensions of word
processing—the blinking cursor, the screen size, the functions such as delete,
insert, and block commands—as dynamic in ways that writing with pen,
pencil, or typewriter is not.

Costanzo goes into classrooms and talks to students of all ages who write
with computers. He finds, as other researchers have, that the most positive effects on students are positive changes in attitudes toward writing and increased interactions between students. But he also notes bad effects: laser-produced printouts that can make writing look better than it is, changed texts that are not necessarily better texts. He wonders if block moves and other rapid-transit text techniques foster poor writing habits, and he quotes Peter Stillman's memorable, "The goal is to make an idea stand still, not to blow it around like chaff."

In Chapter 5, "Writing Aids," Costanzo extensively analyzes prewriting and revising programs like Sensible Grammar for Apple, Grammatik for IBM, and Tools for Writers for Mac, citing strengths and weaknesses of each. He thinks they can make writers better proofreaders and more careful critics of style at word and sentence levels. (He notes that the ghosts of Homer and Writer's Helper haunt him even now as he writes.) Costanzo calls for more research into how writers internalize prompts by using them, and he looks to the future for smarter programs derived from Artificial Intelligence applications.

Costanzo's final chapters ("Programming for English" and "Natural Languages and Artificial Intelligence") will likely be of interest only to those who wish to delve deeply into software and hardware issues, but he does make some cogent points about the effects on students who are learning to program at a young age. He says that through learning to program, he got "a new mental model" of his world, and he wonders if students steeped in programming will be influenced by its principles: "Will their reasoning become more analytic, mathematical? Will they come to expect from their reading the kind of organization that they find in structured programs? Will the precision and logical coherence associated with good programming style transfer to their writing?" Costanzo does not offer definitive answers to these questions, but he does note that his son "became a better speller when he started to write programs because misspellings kept getting in the way of his programming goals." As for Artificial Intelligence—a concept most people born before the computer age have difficulty accepting (or understanding)—Costanzo says that Danny has already "accepted the premise" of AI, that to him "it is not an issue, but a fact" that computers can think. He also says that computers can teach us a great deal about what language is and what it isn't, citing the example of the program Q&A's Intelligent Assistant, which understood a foreign user's English when real people could not (212).

At the end of The Electronic Text, Costanzo returns to the place where he began (with Danny and his friends) and reiterates his theme: these machines and the software that runs them have powerful effects on young minds. He believes that the designs underlying hardware and software encourage or discourage certain types of behaviors, and that activities like writing, reading, and reasoning can seem "more manageable and more amenable to change."
when they are done on a computer. He concludes, “As Danny goes on playing, tinkering with the electronic brain of his computer, it is also tinkering with his.” Unfortunately, Costanzo’s quest ended before the current emphasis on using networks for collaboration and communication, and so *The Electronic Text* doesn’t offer any insight into how these trends will affect tomorrow’s students. Perhaps a second journey is on the horizon. In the meantime, Costanzo has written a very good book that will be useful to both novice and expert. He has given teachers a great deal to think about.


Reviewed by Nancy R. Comley, Queens College, CUNY

Chris Anderson uses the term “literary nonfiction” to cover the essay and “New Journalism,” or personal and informative writing, respectively. While acknowledging the difficulties of the term, Anderson finds it useful because it “conveys the hybrid nature of the texts we study and thus their paradoxical, threshold, problematic nature.” The term also “evokes the two fields we have drawn on: literary criticism, and rhetoric and composition.” In fact, thirteen of seventeen contributors concentrate on the essay, with Dillard, Didion, Eiseley, Orwell, Selzer, Thomas, and White receiving most attention; three writers deal with the journalistic or documentary prose of Barich, Crane, and McPhee; and one contributor, George Dillon, discusses everyday discourse. While the emphasis, then, is predominantly on essayists who have already achieved chestnut status in composition readers and rhetorics, some of the critical approaches used do present new ways to read these texts.

In the first section, “Readings,” which is meant to provide a “grammar of critical approaches to nonfiction,” Charles Schuster leads off with an “aesthetic analysis” of Richard Selzer’s prose, and Dennis Rygiel follows with “Stylistics and the Study of Twentieth-Century Literary Nonfiction.” Rygiel presents a brief overview of the methodology of practical stylistics and applies it to the first four paragraphs of E.B. White’s “Once More to the Lake.” Rygiel provides useful strategies for finding out what stylistic devices might be “producing effects such as simplicity, directness, informality” (39). Richard Filloy applies a theoretical approach to Orwell, arguing that “Orwell persuaded not on the strength of an exceptional personality [the mark of the classical rhetor] but on the ordinariness of a commonplace one,” while Jack Roundy is concerned with John McPhee’s structuring of fact through use of formal devices such as outlining. Mark Allister discusses the work of Bill