

RESEARCH IN

WORD PROCESSING

NEWSLETTER

South Dakota School of Mines and Technology
Volume 6 Number 1

Rapid City, SD 57701

(605) 394-2481

January 1988

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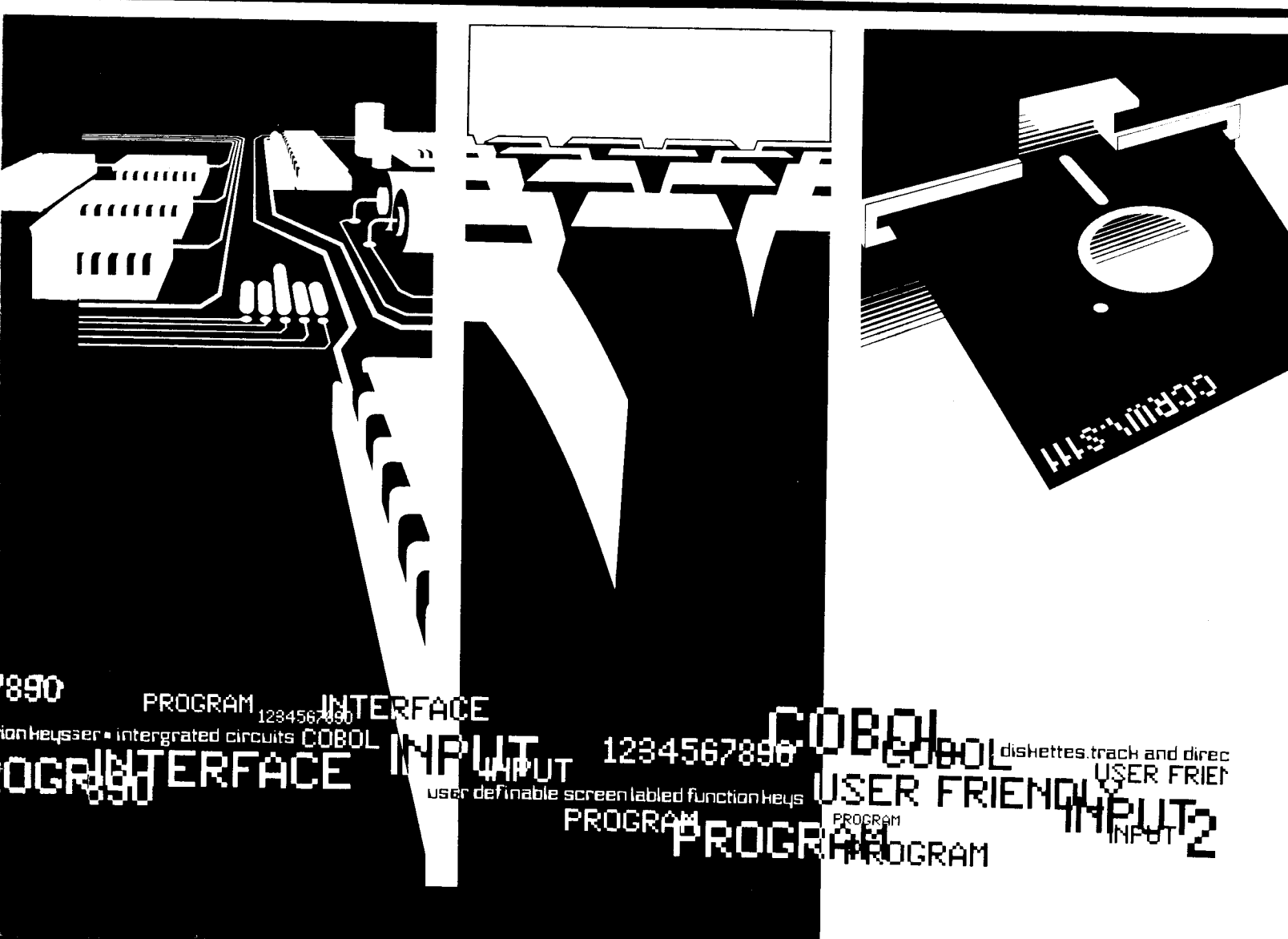
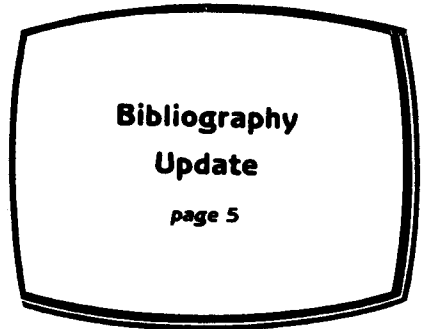
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Ten Computerized College Writing Programs: Toward a Benchmark

Ruth Gardner and Jo McGinness

The following on-site research was completed in 1986 at Colorado State University in Fort Collins, Drew University in Madison (NJ), Drexel University in Philadelphia, Oakland University in Michigan, the University of Alabama at Huntsville, the University of California at Los Angeles, the University of California at Santa Barbara, the University of Minnesota in Minneapolis, Utah State University in Logan and Wilbur Wright College in Chicago.

Computer-Composition Courses: Eight schools use computers in freshman composition courses, five of the eight in all composition courses. Two schools incorporate them into upper division business or technical writing courses only.

Numbers of Computer Courses: When computers are used in all sections of a course, the numbers range from 2 to 65 sections per term. When computers are used in some sections, the sections range from 4 to 50% of the total sections of the course.

Labs

Numbers of Computer Rooms and Computer Classrooms: Six schools have single-room labs and four have from two to five rooms, plus support rooms. Four schools have from one to five computer-equipped classrooms.

Lab Hours: The majority of labs at these schools are open from 8 a.m. to 9 or 10 p.m.

Hardware: In these labs, from 22 to 193 computer terminals are available to students. Five kinds of multiple-terminal systems, six kinds of micros, and a variety of printers are in use.

Software: All of the labs provide word processors, eight provide additional software, and at six schools software was developed within the institution itself.

Lab Supervisors: At eight of the labs, faculty or staff supervisors are used; at nine schools trained undergraduate or graduate students are hired to assist.

Lab Users: Seven labs may be used only by students in computer composition sections, one by any composition student, and two by any student.

Lab Costs to Students: At eight schools, students pay no fees, at one they pay a \$1.00 fee, and at one they pay for time, manual, and paper.

What the Questionnaires Reveal

From the Student Questionnaires:

1) 19% of the students could not type at all at the beginning of the computer-composition courses.

- 2) 62% had not used word processors before the course.
- 3) 58% had positive expectations at the beginning of the course; 30% did not.
- 4) 50% had negative expectations; 42% did not.
- 5) 64% can move paragraphs on a word processor at the end of the course; 27% cannot.
- 6) 77% think they had enough training in word processing to be comfortable writing with a word processor; 17% did not.
- 7) About 60% noticed changes (all but one positive) in their writing processes after using computers; 32% noticed none.
- 8) About 65% would take another writing course with computers.
- 9) Students had varied "other comments" to make.

From Instructor Questionnaires:

- 1) Three-fourths of the instructors who use computers in their teaching use them for other professional and personal writing.
- 2) Most instructors are self-taught in using computers and in using them to teach composition.
- 3) More than half the instructors interviewed think the word processor functions as a vehicle for thinking by students, but many of them think this is so only with guidance by instructors.
- 4) Respondents (administrators also) agree that whether style checkers individualize or standardize students' styles depends upon the quality of the checkers and how instructors use them.
- 5) All instructors (and administrators) agree that paper use increases when word processors are used.

From Administrator Questionnaires:

- 1) Administrators' estimates of faculty members enthusiastic about using computers in composition vary greatly.
- 2) Administrators think that very few faculty members actively disapprove of the use of computers in composition.
- 3) Student training for using word processors typically consists of an hour or two of hands-on orientation with some combination of on-line tutorials, manuals, and help from instructors, tutors, and monitors or consultants.
- 4) Administrators at most schools see similar changes in teaching methods (i.e. more student-centered) in the computer sections of composition courses.

- 5) At most schools individual instructors have changed courses to incorporate computers; at a few, common syllabi incorporating computer use have been designed and are in use.
- 6) Computer use has not changed overall composition programs or goals, but has enhanced them.
- 7) Administrators have lively plans for the future: more equipment and thus more capabilities and more access for more students in more computer writing courses, developing more software, more training and continual retraining, more research, etc.

Instructor and Student Answers Compared

- 1) Instructors and students agree that students use computers more for writing, revising, and editing than for prewriting, organizing, and commenting on peers' drafts.
- 2) More instructors than students think students make more changes when writing with a word processor than with paper.
- 3) More instructors than students think students are more objective when writing with a word processor.
- 4) More instructors than students think students pay more attention to their writing processes when writing with a word processor.
- 5) More instructors than students think students write more when they use word processors.
- 6) A majority of both instructors and students think students write more quickly when writing with word processors.
- 7) Both instructors and students think students feel more free to make mistakes on a word processor than on paper.
- 8) About half of both instructors and students interviewed think that students feel more free to begin writing (other than the introduction) with a word processor.
- 9) More than half of both instructors and students think students play more with words and ideas when using a word processor.

Administrator, Instructor, & Student Answers Compared

- 10) Half of the administrators think that 75-90% of students enjoy using the word processor more than other means of writing, while 90% of the instructors think so. Seventy-five percent of students said they enjoy writing more with a word processor than with pen or typewriter, and only 10% said they enjoy it less.
- 11) Over 70% of both administrators and instructors think that students feel their writing has improv-

ed because of using the computers (many agree, with reservations); 75% of students also agree.

12) With most overlapping between administrators and instructors, each group sees different primary disadvantages in using computers in composition, but similar percentages of all three groups agree that the disadvantages are not with computers, only with labs and software, etc.

13) All groups list improvement in revising skills as a primary benefit of using computers for composing. Ad-

ministrators and instructors seem to emphasize benefits to students' writing processes and students to the finished product.

Ruth Gardner and Jo McGinnis teach in the English Department, University of Arizona, Tucson, AZ 85721. This article draws from a larger effort, "Computers in College Composition: A Comparative Study of Ten Schools." Profiles of individual programs will be forthcoming in future issues.

Desktop Publishing Conference

A three-day conference called "Desktop Publishing and Beyond: Electronic Publishing as a Corporate Strategy" has been scheduled for January 25-27, 1988, in San Francisco, California. Topics to be addressed include defining desktop and electronic publishing, hardware and software options, high-end electronic publishing systems (software compatibility, conversion programs, character recognition, scanners, laser printers, aesthetic judgment, subtleties for artistic talent, vendor strategies, document management, office automation, integration with commercial printing, applications, and demonstrations. Registration is \$895.00. Contact Amy D. Wohl, Technology Transfer Institute, 741 Tenth Street, Santa Monica, CA 90402, or call (213) 394-8305.

National Study on Changes in Teaching English

The University of Connecticut's School of Education is conducting a trans-Atlantic study of possible changes in post-secondary English (broadly defined to include curriculum and instruction) that might occur during the next 15 years resulting from the impact of technology on society and schools. According to project directors Marian S. Calabrese and Ronald T. La Conte, the "central question addressed by this study is: how will (or should) the teaching of post-secondary English change as a result of technological change and its subsequent social response? Word processors, voice-activated/voice-responsive computers, and electronic colleges with their telecommuting students have dramatically changed the very concepts of language, literacy, communication, and ways of knowing."

Using a modified Delphi technique of successive questionnaires, the study will tap the wisdom of acknowledged experts in the field. Contact Marian S. Calabrese or Ronald T. La Conte, School of Education, Department of Curriculum and Instruction, Box U-33, Room 336, 249 Glenbrook Road, Storrs, CT 06268.

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Call for Papers: Writing and Language Instruction

The University of Minnesota at Duluth will host "Computers in Writing and Language Instruction" next August 1-2, 1988 (conference) and August 3-5, 1988 (workshops on computer-aided instruction by Robert Cavalier, Glyn Holmes, Chris Neuwirth, Donald Ross, Cynthia Selfe, and William Wresch). For information on these hands-on workshops, contact Thomas J. Pollack, Center for Professional Development, 19 School of Business and Economics, 10 University Drive, Duluth, MN 55812, or call (218) 726-6142.

The conference will bring together teachers and researchers from two fields—composition and second-language instruction—to explore the many ways of helping students improve their language skills. Papers will present the latest developments in language learning and current research in the practices and effectiveness of computer instruction. Abstracts on theoretical topics or applications should be at least one page, and should outline an approach and illustrate its relationship to previous work in the field.

Proposals for demonstrations of software should indicate the underlying pedagogy and give the "flavor" of the instructional techniques involved. Proposals for papers on any aspect of computers and writing, or computers in language instruction, should be sent by February 29, 1988 to Donald Ross, English and Composition, 207 Church Street S.E., 207 Lind Hall, University of Minnesota, Minneapolis, MN 55455.

Humanities Programming Conference in April

ICEBOL3, the International Conference on Symbolic and Logical Computing has been set for April 21-22, 1988, in Madison, South Dakota. In addition to a focus on SNOBOL, SPITBOL, AND Icon, ICEBOL3 will feature introductory and technical presentations on other dangerously powerful computer languages such as Prolog and LISP, as well as on applications of BASIC, Pascal, and FORTRAN for processing strings of characters. Proceedings will be published.

Abstracts for papers were collected until January 15, 1988, on various aspects of non-numeric computing, including ■ artificial intelligence ■ expert systems ■ desktop publishing ■ analysis of literary texts (including bibliography, concordance, and index preparation) ■ linguistic and lexical analysis (including parsing and machine translation) ■ preparation of text for electronic publishing ■ computerized instruction ■ grammar and style checkers, and ■ computer-generated poetry. Contact Eric Johnson, ICEBOL Director, 114 Beadle Hall, Dakota State College, Madison, SD 57042, or call (605) 256-5270.

National Project on Computers and College Writing

The City University of New York has been funded by the Fund for the Improvement of Postsecondary Education to conduct a national study focused on the effects of computers and word processing on college writing. The project is a three-year effort designed to showcase colleges with writing programs that utilize computer word processing and to develop evaluation models for wide dissemination. A call for participation proposals ended December 15, and a national conference is being designed to provide a forum for discussion and future research.

The project will identify outstanding college programs that have incorporated computer word processing in freshman year (basic writing, developmental writing or freshman composition) courses and will develop model research designs to assess the impact of these courses on students' writing abilities. The project will also propose model assessment plans for colleges nationwide and develop showcase materials from participating programs. The materials should help college teachers learn about existing word-processing-for-composition models and how to implement them at their own institutions. Contact Max Kirsch, Managing Director, National Project on Computers and College Writing, CUNY, 535 East 80th Street, New York, NY 10021, or call (212) 794-5484.

THE PROFESSIONAL WRITER'S WORKSTATION

Content Analysis Comes to Micros

Bryan Pfaffenberger

Software Profile

PRODUCT:	Textpack V, v. 3.0
DESCRIPTION:	A family of programs for the qualitative and quantitative analysis of computer-readable texts. Included are programs for word frequency analysis, key-word-in-context concordances, indexes, and content analysis. Supplied on four 5¼" floppies; includes installation guide, plastic-coated quick reference guide, and 100-page technical reference manual.
REQUIRES:	IBM PC, XT, or AT with 512K RAM and 8087 coprocessor chip. Hard disk recommended.
AVAILABLE FROM:	Zentrum für Umfragen, Methoden, und Analysen e.V., Postfach 5969, D-6800 Mannheim-1, WEST GERMANY
PRICE:	\$60.00 US (prepaid, includes postage).

Periodically, scholars are seized with the notion that a quantitative analysis of word frequencies will somehow reveal a text's innermost truths. The idea is by no means new. Baudelaire is said to have observed that a study of the words a writer habitually used would reveal the author's "obsession"—the subjects closest to the author's heart and purpose. And it has indeed been shown that every author uses a unique vocabulary; the resulting "fingerprint" is of use in cases of disputed authorship. But can it tell us about the author's "heart and purpose"?

Good grounds exist for supposing that a simple word frequency list will reveal very little. Any word frequency analysis assumes—naively—that *surface* linguistic phenomena, the words in a text, provides a more or less sound index of *themes* of some sort, themes that go beyond the text itself and tell us something about the cognitive or social world from which it was drawn. Such themes, at the extreme, could even be said to be *culture indicators*, which inform us about the overarching beliefs, values, ideologies, and other cultural systems that characterize an epoch or place. Yet the assumption that surface linguistic phenomena (words) directly reveal such matters is, in a word, problematic. It ignores the speaker's or writer's communicative intent

in using a word (consider the use of a word, for instance, in negation, irony, or sarcasm). Worse, it could well be argued that when values (e.g., an affection for political democracy) are broadly accepted, people do *not* talk about them very much; it is only when the values are in question that they come up often in public discourse. Word frequency approaches, then, may be suited only to those texts, such as suicide notes, autobiographies, and political speeches, in which the writer or speaker makes a *deliberate* effort to clarify the text's themes.

Such concerns aside, however, many literary scholars and political scientists have experimented with a more sophisticated form of word frequency analysis called *content analysis*. A content analysis seeks to overcome the shortcomings of simple word frequency analysis by measuring the incidence, not of single words, but of *groups of related* words. The idea here is that the concept of "wealth" may be expressed in a variety of ways; a political speech, for instance, may refer to "money," "capital," "abundance," "income," "salary," "wage," or "megabucks," yet—arguably—all such references *indicate* the same thing, that is, a concern for wealth in the abstract. A writer whose "obsession" is wealth, or so goes the argument, will reveal it sooner or later by using one or several of these words. Several standard dictionaries of grouped words (such as the *Lasswell Values Dictionary*) have already been published, but researchers in this area continue to compile their own dictionaries to suit special purposes.

Content analysis, although more sophisticated than a mere word frequency study, is still controversial; its naive empiricism is as hard to swallow as its simplistic assumption that the use of one of a group of words refers, in a direct and uncomplicated way, to a writer's concern with cultural themes or values. The way to resolve such problems is to play with the technique through exploratory data analysis, trying out alternative dictionaries and analytical strategies. However, content analysis software has been available only in mainframe formats. Because one has to pay for CPU time when using a mainframe, exploratory data analysis has been discouraged, a fact that has—arguably—retarded scholarly progress in this area.

Whatever one's position is on the merits of content analysis, therefore, there are ample grounds to welcome the appearance in IBM PC format of *Textpack V*, a microcomputer version of the content analysis software used by most researchers in this area. The micro version is actually better than the mainframe one (version 3.0); available at a bargain price (\$60), it nevertheless includes all of the original programs' features as well as an integrated sorting routine, relieving the user from the need to use the tedious sort software provided with system software. And now that *Textpack* is available for microcomputers, one can well predict that the sophistication of content analyses will improve; there's nothing to stop researchers from engaging in exploratory data analyses to their heart's content.

Textpack V is probably the most powerful content analysis program available for microcomputers at present, but it's much more than a content analysis program. It's a family of related text analysis programs that include procedures for generating simple word frequency analysis, creating key-word-in-context con-

cordances, compiling indexes, and comparing the vocabularies of two texts. Although far from user-friendly in the Macintosh sense, *Textpack's* programs are well-conceived, fast, and powerful. The documentation is cryptic and dry, but a reasonably proficient PC user can manage it. *Textpack V* can, in sum, do just about everything that a literary scholar or political scientist would want to do with a computer-readable text. Academic computing centers take note: when the humanists and social scientists start knocking on your door and talking about text analysis, you'll do well to have a copy of the MS-DOS version of *Textpack V* around.

Contributing Editor Bryan Pfaffenberger's books include *The Scholar's Personal Computing Handbook* (Little, Brown, 1986), *Personal Computing Applications* (Little, Brown, 1987), *Business Communication in the Personal Computer Age* (Richard D. Irwin, 1987), and *Microcomputer Applications in Qualitative Research* (Sage University Papers in Qualitative Research, forthcoming).

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The Future of Desktop Publishing in Technical Communications

Bradford A. Morgan

Desktop publishing is typesetting made more widely available to general computer users, including technical writers. More than for typewriting and other forms of word processing, the promise of desktop publishing parallels the communication value perceived in professionally printed material, and the boundaries of the writing process are being extended. The workstations of technical writers will approach further integration as more and more hardware and software work together to underpin all aspects of document production.

Word Writing and Type Processing

The appeal of desktop publishing to technical writers can be found in the historical difference between typewriting and typesetting, terms which often include those other production steps that empty into the final published work. Even before the computer, the superiority of typeset printed matter was well-established; readers of technical documents long ago recognized the communication value of font-based, picture-added text which was both visually compelling and informative. But typesetting has traditionally been expensive, laborious, learning-intensive, and time-consuming.

Unlike the limited, one-dimensional sphere of typewriting, the text-production world of typesetting has always included an emphasis on font variety (sizes, bolding, italics), customized page layout, multiple columns, quality printing, and the merging of graphics and text. Before the computer, the typewriter-centered technical writer often tended to be distanced from production options once personal control of a manuscript was turned over to the publishing team. In terms of final communication to the reader, the act of writing was more fragmentary than integrated.

Just as the introduction of the computer for word processing served to integrate under one electronic cover many of the familiar acts of writing—typing, filing, spell checking, electronic research, and the like—the computerization of typesetting has brought together the work of various members of the publishing team under one onscreen workstation. Both desktop publishing and advanced typesetting technology pursue a similar logic of development, causing more and more steps in the publication process to be brought

under individual control (though some large-scale networked systems have maintained the autonomy of multiple workstations). In this sense, desktop publishing is the transfer of dedicated typesetting techniques to general-purpose computers, including PCs and mainframes.

Typography and Printing Reconsidered

The widespread availability of desktop publishing software to most technical writers is resulting in a resurgence of interest in printing, graphic design, art, and typography as disciplines. The scope of professional responsibility has been extended, and easy-to-learn software documentation is being demanded to meet the challenge. Despite the long-established academic disciplines supporting activities such as graphic design, the new software assumes that a working body of fundamental principles can be self-taught. Such an approach is consistent with the intent-to-teach posture of computer software and publications since the advent of the PC, hoping to educate would-be computer users across the social spectrum in an environment in which few people, even professionals, had any academic exposure to computers.

The Writing Process Extended

Even so, the integration of writing and publishing found in desktop publishing reminds the technical writer that workstations in engineering and science will continue to seek integration. The researching and composing software that support various parts of the writing process will be adapted to desktop publishing; online thesauri, grammar, style, and spelling checkers will be supplemented with outline and idea processors, database managers, index and table-of-contents generators, telecommunications-based access to research archives, heuristic thought-generators, and project managers. Desktop publishing and word processing have already begun to merge—each type of program is taking on more and more of the characteristics of the other.

As more and more of the writing process becomes supported by software applications, technical writers realize that advancing micro technology and laser printing are allowing writers further control over the

interplay between form and content: personal typesetting programs extend the range of options by which ideas can be visually communicated. The addition of publishing to the writing process, however, has meant that writing workstations are more fully equipped with turnkey-like hardware systems, integrating scanners, digitizers, facsimile devices, laser printers, typesetter interfaces, CD ROM for picture and font libraries, and various network and online hookups. Hardware for the technical writer using desktop publishing already makes large display screens mandatory, and high-resolution color screen-and-printer output will become standard.

On the other hand, software will continue to move toward WYSIWYG intuitiveness while attempting to maximize the precision and control of code-entered parameters. It is already apparent that style sheets and macros of all types will help to make this possible.

Desktop Publishing Engineering Workstations

The computerization of common engineering tasks has resulted in instrumentation and other laboratory equipment with much-needed data-collection and data-analysis components, and desktop publishing will continue to maximize the reader's access to such information, providing for translation to graphs, charts, spreadsheets, and other formats. The emphasis in desktop publishing on merging text and pictures continues to make the job of the technical writer easier in

disciplines which make heavy use of chemical and math formulas, special symbols, as well as schematic diagrams and other engineering drawings. Technical writers have discovered that CAD/CAM files, including those from electronic drafting, can be scaled up and down, rotated, cropped, and otherwise prepared for insertion in reports.

Going beyond the creation of better visuals for oral presentations, the long-held belief among technical writers that pictures often communicate better than words will mean that desktop publishing will continue to increase the picture elements in applications such as documentation, product catalogs, proposals, specifications, project management, and reports of all types. Automatic numbering of figures and charts will remain as important as computer number-management now found in specifications, outlines, and footnotes.

The movement toward font and picture-based text is as natural an evolution (voted on historically by consumers) as the inevitable adoption of color over black-and-white media. If early word processing found its model in typewriting, desktop publishing saw typesetting as its example, momentarily reversing the dream of paperless communication. In the future, technical communication will move toward even more integration as desktop publishing matures.

[Ed. Note: Portions of the above were presented at the IEEE's International Professional Communication Conference in Winnipeg, Canada, October 14-16, 1987.]

Manuscript Submissions Welcome

The *Newsletter* welcomes article submissions that pertain to word-processing, text-analysis, and research applications in professional writing situations. Also, hardware and software reviews are encouraged, but please contact Dr. Jim Schwartz, Hardware/Software Review Editor, **before** submitting them (call Jim at 605-394-1246). Manuscripts may be submitted either as hard copy or on 5¼" diskettes using *XEROX Ventura Publisher*, *MicroSoft Word*, *WordPerfect*, *DCA*, or standard ASCII code. If submitting disks, please make sure they are formatted either in MS-DOS, PC-DOS, or a popular CP/M format (Kaypro, Zenith, etc.) The Editors reserve the right to edit manuscripts, if necessary. If you want your manuscript or diskette returned, please send enough postage to cover the return along with a self-addressed envelope. Address all correspondence to the Editors, *Research in Word Processing Newsletter*, South Dakota School of Mines and Technology, 501 E. St. Joseph, Rapid City, SD 57701-3995. Jim Schwartz may also be reached on *CompuServe* (70177,1154).

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