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Electronic Publishing

Carol Tenopir
University of Tennessee - Knoxville

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MORE THAN A DECADE AGO, F.W. Lancaster described the two major evolutionary stages of electronic publishing (F.W. Lancaster, "Electronic Publishing: Its Impact on the Distribution of Information," *National Forum*, Summer 1983, p. 3–5). Electronic publishing, in its first stage, is merely the simulation of print on paper publications, whether they are distributed on paper, electronically, or both. The second stage has electronic publishers truly exploiting the unique capabilities of electronic media to design and package new types of publications. Lancaster would later refine his depiction of electronic publishing past, present, and future in 1989, describing six steps that evolve not only in their use of electronics but in their level of impact on authors (creators), publishers, and users (readers) (F.W. Lancaster, "Electronic Publishing," *Library Trends* 37, Winter 1989, p. 316–325).

Major stages today

Returning to Lancaster's original two major stages, it is clear today that we are in an era where both stages exist simultaneously. Libraries today can choose to purchase or access many stage one electronic publications that merely simulate print on paper. In addition, new types of electronic publications, that go beyond print, are available. Libraries are finding ways to collect, provide access to, and participate in the creation of both major stages of electronic publishing. The choices made have significant impacts not only on hardware and software but on services and budgets as well.

Electronic copies

There are two primary "choices" of publication types that simulate print on paper. The first is where electronic journal publishing began in a majority of cases and still remains. Choice one publications provide text-only electronic copies of journals or other materials where print remains the major distribution format. They are byproducts, and often afterthoughts, of computer-aided printed publications. Hardware and software requirements are minimal.

The electronic versions are actually imperfect copies of their printed counterparts, since all illustrations, photographs, charts, and most tables are excluded. The text is pure ASCII, without

S cholars and researchers can serve as authors, publishers, and critics with original electronic journals

special characters (such as mathematical symbols) and without the capabilities of aesthetic layout or typefaces.

This first choice is still where most commercial online services remain after 20 years. So-called "full-text" databases on systems such as DIALOG, Mead, BRS, etc., are category one publications, with few enhancements over the years. The more than 4000 periodicals listed in BiblioData's *Fulltext Sources Online* (Ruth M. Orenstein, ed. bi-a. *Fulltext Sources Online*. BiblioData, 1994) are almost all choice one publications.

CD-ROM also is used to distribute ASCII-only copies. Many CD-ROM databases from DIALOG Ondisc, Information Access Company's (IAC) Info-Trac, SiverPlatter, and others provide such full-text versions of newspapers, journals, magazines, and directories.

ASCII-only journals are powerful finding aids, where full-text searching of ASCII text allows needles to be found in haystacks and provides higher recall than bibliographic databases. ASCII publications can also suffice when the "real" journal or a copy is not available.

Still, print is the primary distribution means for these publications and the major source of income for their publishers. In fact, many of these journals are provided to online vendors by database-producer intermediaries, rather than directly by the journal publisher, and the primary publisher doesn't expect to make much money on the electronic versions. IAC, for example, mixes the journals of many different publishers in its ASAP databases and divides the royalties among them. Choice one electronic publications are still a blip in a print-based economy.

More perfect copies

The second choice in electronic publications involves more perfect copies of printed publications. As with choice one, print is still the primary distribution format, but these electronic copies include both text and graphics and often reproduce type fonts, layouts, and other aesthetic features. Most of these are image files, scanned directly from a printed issue.

Although they look more like "real" journals, the trade-off with image files is the loss of searchability that ASCII full text provides. Image-only journals must be used in conjunction with a bibliographic database that allows the user to locate desired articles. The choice two publication is thus in many ways just a document delivery convenience and as such is very popular in libraries.

CD-ROM is the main media of distribution for these journals. A middleperson often serves as distributor, with the primary publisher still far removed in the economic loop. Publishers do not view these as replacements for print publications, or often even as a particularly lucrative sideline. Hardware requirements are more stringent, typically requiring more disk storage space, high-resolution monitors, and laser printers.
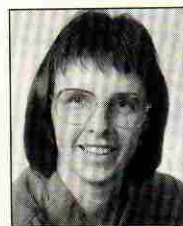
Carol Tenopir is Professor at the School of Library and Information Studies, University of Hawaii at Manoa, Honolulu

ONLINE DATABASES

Just as it has been with microfilm, UMI is the main distributor of CD-ROM image publications with its ProQuest image products such as General Periodicals Ondisc, Magazine Express, and Business Periodicals Ondisc.

Increasingly, online is being used for image dissemination by document delivery services. The Research Libraries Group's Ariel service, for example, provides document delivery and capture over the Internet.

Original ASCII publications

Stage two electronic publications will have a much more profound impact on publishers, libraries, authors, and readers. Because these publications provide unique products, not available in print, the choice each library must make is not between accessing them in print or electronically, it is between accessing them electronically or not at all.

The first stage two choice, like the first stage one choice, is text only, but it provides original publications rather than copies of print equivalents. These publications do not duplicate print; they are created electronically with electronic distribution in mind. Publication is generally fast and may be either informal electronic newsletters or refereed "E-journals."

Although some journals of this type have been around for years, it was not until the recent proliferation of Internet use that E-journals began to be a potent force and viable choice for scholars, researchers, libraries, and others. The Internet is by far the most popular conduit for these journals and provides access to hundreds.

The long-term impact of original electronic journals is likely to be great. Not only is electronic distribution the only option for access for these journals, but creation and distribution on the Internet often circumvents the formal publishing community. Scholars and researchers, in particular, can serve as authors, publishers, and critics with this type of electronic journal. Readers can add to and offer commentary on articles.

Already in some research disciplines, electronic journals are relied upon as the main information resource. Dissemination is fast and inexpensive; it can be more formal than an informal network of colleagues but less formal than a printed publication. Authors can get instant feedback on their research in progress.

An expanding arena

Michael Strangelove and Diane Kovacs's *The Directory of Electronic Journals, Newsletters, and Academic Discussion Lists* (3d ed. Association of Research Libraries, 1993) shows how quickly original electronic text publications are growing. In 1991, the first edition listed 110 electronic journals or newsletters and 517 discussion lists. By the third edition in 1993, there were 240 journals or newsletters and 1,152 discussion lists.

Libraries have a difficult choice to make with these unique and somewhat informal electronic publications. Do

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E lectronic-only publications force libraries to choose between accessing them electronically or not at all

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they provide training and access to them online? Do they create and provide finding aids such as indexes to the contents? Do they archive E-journals? What happens if the publisher or creator decides to discontinue support of the often voluntary effort?

Commercial publishers are also finally beginning to become involved in the creation/adaptation of stage two electronic journals. *Time* magazine went up on America Online last summer, and the *New York Times* will become available later this spring. Scores of newspapers and news magazines will follow on America Online and other such consumer services.

Both of these ventures provide an extra dimension beyond their print counterparts because they offer interactivity as well as access to text. Readers can send electronic letters to the editor, participate in discussions of major issues, and sometimes be involved in electronic events, such as *Time*'s November electronic access to evangelist Billy Graham.

Original text and images

Some electronic publications now are original publications, without print equivalents but with images as well as

ASCII text. They require special software as well as hardware that can capture and display the images. They are newer and still much less common than the other choices but will grow steadily in numbers.

OCLC pioneered online journals of this type. The *Online Journal of Current Clinical Trials*, produced in cooperation with the American Association for the Advancement of Science (AAAS), was its first and has won many awards for innovation. Its technological success has led OCLC to develop others beginning this year, such as the *Online Journal of Knowledge Synthesis for Nursing*.

Both are available online, and both offer charts, graphs, and other graphics in addition to searchable text. Both use special software on the creation and user end that allows formatting and other aesthetic conventions to create an electronic publication that also looks good. Unlike some E-journals, these are formal, peer-reviewed journals that report research results but that also allow interactivity. They are paving the way to replacement of paper journals by providing a credibility that will lead eventually to acceptance by the academic establishment.

In the CD-ROM world, the tremendous growth of multimedia products provide graphics, text, sound, and motion with software that is interactive. Starting with the encyclopedias such as Compton's and Grolier's, multimedia products have grown so much in the past two years that there are now thousands of titles, many of which sell for under $100. Availability of adequate numbers of relatively expensive computers is still a stumbling block in libraries. Hardware requirements are specified in the MPC2 standard.

What the future will bring

Let's leave it to Lancaster and others to predict further innovations in electronic publishing. But, no matter what the future brings, all of the choices described here are available now. Many libraries are using them, and all should be considering how they will incorporate them into their collections, instruction, and services. Will electronic publications, in particular electronic journals, ever completely replace print? Probably both will exist for quite a while, but in the long run economics may make electronic the premier publication means, with paper a mere printout for those who want it.