To E- or Not to E-: Print vs. Electronic Ready Reference

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To E- or Not to E-:
Print vs. Electronic Ready Reference Tools

by Frances C. Wilkinson (The University of New Mexico; Phone: 505-277-4241; Fax 505-277-7288) <fwilkins@UNM.edu> and Linda Lewis (The University of New Mexico; Phone: 505-277-7828; Fax 505-277-4446) <llewis@UNM.edu>

The past several keynote columns for the reference issue of Against the Grain have dealt with issues such as the proliferation of reference materials, the increasing array of format choices, the impact of the Web on reference publishing, and the growth of products that combine traditional indexing and full-text features. Looking back over those columns, it is evident that the growth of electronic reference tools in the past few years has surpassed almost all predictions. As recently as five years ago, few publishers or librarians would have predicted that major print dictionaries or encyclopedias would be supplanted by entirely electronic versions. Now many publishers are considering doing just that.

This column will explore attitudes of both librarians and end-users toward electronic ready reference tools, specifically, electronic dictionaries and encyclopedias. To address these issues the authors conducted an interview-style “joint discussion” among four librarians from three institutions. The librarians are from institutions ranging from traditional brick and mortar schools (Guilford College and the University of New Mexico) to an entirely virtual school (Western Governors University).

Librarians were asked to respond to questions on whether or not they provide access to free and/or subscribed to electronic reference tools, if they keep usage statistics on these tools, if end-users more often access them remotely or in the library, their views on questionable Internet resources, if there is a need for print tools if electronic ones are available, and what they feel are the main concerns of end-users. They polled a group of their end-users asking them whether or not they have used electronic ready reference resources, if they prefer the print or electronic version of them, if they see a need for print reference tools if electronic versions are available, how they decide which electronic tools to use, and if they usually access them remotely or in the library. Finally, the librarians reacted to the end-users’ responses.

The librarians and their institutions...

Ruth Richardson Scales is the Selector for Art, English, Philosophy, and Theatre Studies, at the Hec Library at Guilford College in Greensboro, NC.

If Rumors Were Horses

Information Today, Inc. and Cambridge Scientific Abstracts have announced a joint agreement to buy R.R. Bowker from Reed Elsevier. Unofficial estimates put the purchase price in the $20-30 million range. Cambridge will acquire the Books in Print family of products; Ulrich’s Periodical Directory; Magazines for Libraries; a number of journals and newsletters, such as Business Information Review and Journal of Information Science; and a variety of other small products. In addition, Cambridge will have the exclusive right to operate the U.S. office of the ISBN (International Standard Book Number) agency. The directories purchased by Information Today include Literary Market Place, International Literary Market Place, American Book Trade Directory, American Library Directory, Annual Register of Grant Support, The Bowker Annual Library and Book Trade Almanac, Library Resource Guide, AV Market Place, Directory of American Research and Technology, and American Men & Women of Science. Andrew (Drew) Meyer, the current CEO of Bowker and Marquis, will be retiring. Michael Cairns, Bowker’s former vice president for business development, will be executive vice president and general manager of Bowker, LLC, and will report to Jim McGinty, president of Cambridge Information Group. Read more about this at: http://www.infotoday.com/newsbreaks/nb010824-1.htm.

The bam-zowie Katie Ellis <k.d.elliis@alum.wellesley.edu>, until recently of the University of Tennessee-Knoxville, is happy to be back home in New Hampshire.

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ing countries for free or at deeply-reduced rates. Scheduled to start in January 2002, the initiative is expected to last for at least three years while being monitored for progress. It will benefit all bona fide academic and research institutions, which depend on timely access to biomedical journals. Between now and the end of this year, these institutions will be identified individually and the process put in place so that they can receive and use access authentication. All parties—the publishers and the participating institutions will learn from this experience. Decisions about how to proceed after the initiative will grow from the precedents it sets, and will be informed by the working relationships that have developed among the partners. Working with the British Medical Journal and the Open Society Institute of the Soros Foundation network, WHO approached the six biggest medical journal publishers—Blackwell, Elsevier Science, the Harcourt Worldwide STG Group, Lippincott Williams & Wilkins (Wolters Kluwer), Springer Verlag and John Wiley, with the aim of bringing them together with the countries concerned to seek a more equitable pricing structure for online access to their international biomedical journals. The outcome is a tiered-pricing model developed by the publishers that will make nearly 1,000 of the 1,240 top international biomedical journals available to institutions in the 100 poorest countries free of charge or at deeply-reduced rates. For details, visit http://hi-europe.co.uk/files/2001/9983.htm.

And a related initiative. The Université Cheikh Anta Diop de Dakar in the West African nation of Senegal has signed the first licensing agreement delivered through the IDEAL Charter for Low-Income Coun-

tries, Harcourt’s philanthropic initiative making electronic journals affordable to very poor nations. Through this license, universities, research centers, and teaching hospitals across Senegal may access the over 300 journals in science, technology and medicine on IDEAL—at http://www.idealibrary.com. Along with the Université Cheikh Anta Diop, Université Gaston Berger de Saint-Louis in Senegal is initially participating in the first charter license. As connectivity becomes more widespread in Senegal, a nation of about 10 million, more institutions will take advantage of this licensing agreement. The IDEAL charter offers nationwide licenses, meaning that once a license is purchased in a country, any technologically ready and eligible institution there may access IDEAL journals without paying any additional licensing fee. Further details about the charter initiative appear at http://www.academicpress.com/ww/ideal/charter.htm. The Université Cheikh Anta Diop is funding Senegal’s IDEAL charter license out of the acquisition budget of the university’s library, directed by Dr. Henri Sene. Scientific associations currently endorsing the IDEAL charter include IASTMP (International Association of Scientific, Technical and Medical Publishers), INASP (International Network for the Availability of Scientific Publications), and TWAS (Third World Academy of Sciences). Researchers in poor nations are voicing support for publisher-led initiatives such as the charter.

Heard from the wonderful Bob Molyneux <brdata@molyneux.com> who tells me first, that he is an assistant professor at USC. Second, Table 1 on page 38 of the June issue had some missing numbers: All are FTE faculty. Mean, 1979-80: 11.8; Mean, 1998-99: 14.3; Median, 1979-80: 10.7; Median, 1998-99: 13.3. Also, the declines are increases instead so the % in the right hand column should be: Means, 1979-80 to 1998-99: 21%; Median, 1979-80 to 1998-99: 24%. We have reprinted this table in this issue of ATG see p. 36 and Bob is also going to load the tables up on his Website! There won’t be tables in the next few columns. See The Devil’s Advocate, this issue, p. 36.

A recent note in the Bookseller: A group of UK and US scientists has vowed to boycott Reed and Harcourt General STG journals from September, following the merger of the two groups. The academics are angry that research papers supplied for free to corporate publishers are sold back to the scientific and library communities at a huge profit. In an open letter, written by the Public Library of Science (PLS) pressure group, 25,000 academics worldwide pledged not to write for, edit, review or subscribe to any journal that would not make all material available for free after six months.

Have you read Clifford Lynch’s paper “The Battle to define the future of the book in the digital world” which was published on First Monday’s Website http://www.firstmonday.dk/issues/issue66/lynch/index.html. If not, you need to.

And, did you read the Op Eds in the past two Charleston Advisors? http://www.charlestonco.com. The first is by Chuck Hamaker <cchamake@email.uncc.edu> and the second is by Pat Schroeder, president and CEO of the Association of American Publishers. Both articles discuss the fact that the AAP and librarians seem to be at loggerheads in terms of access to information. And, here’s yet another article in the MIT Technology Review, June, 2001, “Owning the Future: Looting the Library,” by Seth Shulman http://www.technologyreview.com/magazine/jun01/shulman.asp.

Heard recently from Mary-the-fantastic-fit-as-a-fiddle-Fugle <mfugle@lww.com> who was reading Against the Grain and told me about a great book, Mary Gordon’s Spending that she's been reading. Have you read it? What all have you been reading. Why not share it with other ATG readers here in the Rumors column? <strauchc@earthlink.net>

Tsinghua University in the People’s Republic of China has purchased the ISI Web of Knowledge suite of Web products, including the ISI Web of Science, ISI Journal Citation Reports on the Web, ISI Chemistry, ISI Proceedings, ISI Current Contents Connect, and Derwent Innovations Index. Tsinghua University was established in 1911 and is located in the northwest corner of Beijing. Today, Tsinghua University is made up of 44 departments distributed in 11 schools, including disciplines like Sciences, Engineering, Humanities and Social Sciences, Economics, Management and the Arts. For more information about Tsinghua University, please visit the university home page at www.tsinghua.edu.cn.

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<http://www.against-the-grain.com>
other states. Each student works closely with a WGU faculty mentor who guides the student through his or her customized degree program. Because of the structure and interrelationships between the librarian, the faculty mentors, and the academic coordinators, they are able to work very closely with all the students. An online discussion group is established for library announcements, and the staff is available daily for reference and technical assistance. The library page is a direct link from the WGU Home Page, which brings patrons to the entire collection of library resources and services (go to http://www.WGU.edu and click on the Library button on the top). Everything available to the students from the library is online through this Web page. Depending on their situation, students may have online or physical access to local or university libraries as well, and they all have online access to many UNM Library resources, but there is no other physical WGU library beyond the Web page. Barbara of WGU says, “Our patrons are sophisticated searchers and are therefore open to exploring and discovering available library resources. I think I have become more aware of the fact that many students at most colleges or universities really do not know the range of materials available to them through library Web pages. We should not be surprised by that or make judgements about it. It is just up to us to make them aware.”

If you are a librarian...

1) Does your library link to free electronic reference tools such as e-dictionaries, e-encyclopædias, e-handbooks, etc.? If so, which ones? Which resources do you link directly from your OPAC (Online Public Access Catalog)? Which resources do you link directly from your Library Web pages?

Richardson Scales, Guilford College: “Since Guilford College is a small, private, residential liberal arts college with a Quaker heritage, not much attention had been given to electronic resources. In the last few years, more attention has been given to serving our growing non-traditional students in the Center for Continuing Education’s credit and non-credit programs. Due to the efforts of our Information Technology and Systems department, we were listed as the fifty-first most wired college in Yahoo! Internet Life magazine’s ‘America’s Most Wired Colleges’ in 2000. Last spring, we finished the library’s Web page, which includes links to subscribed electronic resources. We plan to develop subject-specific study guides or bibliographies for the Web page that will include stable, free electronic resources. We are now evaluating free electronic reference tools for inclusion in our Reference Department’s Website. We have not cataloged any free electronic resources yet due to our cataloging backlog, but plan to catalog some authoritative resources such as Dictionary.com and Bartleby.com.”

Botts and Bauterschmidt, University of New Mexico: “The UNM Libraries link to a wide variety of free electronic reference tools through our library Web pages. One page lists general reference and information links that are divided into 34 categories and contain more than 230 individual links. Popular categories include Dictionaries/Thesauri, Encyclopædias, Telephone Books, Acronyms/Abbreviations, Weights and Measures, and Style Manuals. Subject- or discipline-specific free Web links are available through our ‘Resources by Subject’ Web pages. At UNM our practice is to catalog and maintain subscription resources and government depository items in our online library catalog. We do not catalog free electronic reference tools in the OPAC.”

Rosea, Western Governors University: “The WGU Central Library page offers a link to the Ready Reference Shelf which allows access to numerous free encyclopædias, dictionaries, handbooks, directories and manuals, such as the Merriam-Webster Dictionary, Roget’s Thesaurus, the Bucknell University dictionary page, Stanford Encyclopædia of Philosophy, Bartlett’s and the Almanac of Politics and Government. Using the term ‘reference tools’ loosely, we go beyond strict encyclopædia information and also include resources such as health sites, zip code directories, maps, and excerpts from style manuals. This is just one of the many places where librarians are broadening their scopes and definitions.”

2) Does your library subscribe/pay for electronic reference tools such as e-dictionaries, e-encyclopædias, e-handbooks, etc.? If so, which ones? Which resources do you link directly from your OPAC (Online Public Access Catalog)? Which resources do you link directly from your Library Web pages? Explain how patrons access subscription/free-based electronic reference tools remotely from off campus (how are they authenticated)?

Richardson Scales, Guilford College: “Encyclopedia Britannica is the only electronic...
tronc reference tool we pay for directly. In
North Carolina, we have the benefit of using
NC-Live, a statewide consortium for elec-
tronic resources for public libraries, academic
libraries and school media centers. With NC-
Live we can use Grolier Multimedia Ency-
clopedia and Funk and Wagnall’s New World
Encyclopedia, in addition to several resources
that would not be used in an academic library
such as the Encyclopedia of Animals with
GaleNet. World Almanac and World Book
Encyclopedia are included in our OCLC
FirstSearch package. We have cataloged a
few electronic resources, taking advantage of
the 856 field since we started using a Web
interface for public access to the catalog. We
only catalog the few resources that we pay
for directly such as the Encyclopedia
Britannica. To date we have not cataloged
anything we use through NC-Live. We plan
to catalog more of the online resources that
we subscribe to in the next academic year.
The library’s Web page includes links to elec-
tronic resources, but they are IP dependent
or require a password from the reference li-
brarian. Currently, off-campus users only
need one password for all of the NC-Live
resources. This password is changed by NC-
Live twice a year and is distributed by the
library staff. Users can call the circulation
desk to get the passwords for NC-Live and
other resources, which means they can only
get the passwords during library hours. This
presents an au-
tentication problem, since the
caller’s identity is not verified.
By the end of the school year, we plan
to have remote access to all elec-
tronic resources through the Web
page and more resources cata-
aloged with active 856 fields using
CGI scripting with URL rewriters
and other methods and user iden-
tification.

Botts and Bauschmidt,
University of New Mexico:
“UNM Libraries have subscrip-
tions to a number of electronic
ready reference materials, including
American National Biography, Gale Biog-
raphy and Genealogy Index, Grove Di-
tionary of Music and Musicians, Oxford En-
lish Dictionary, Reference USA, World
Almanac and many more. Most of these
resources are available from our Web-
based OPAC for our on-campus patrons.
Rather than distribute special account
tales and passwords to access the indi-

dividual resources, we use an Internet Pro-
tocol (IP) method of authentication that
also includes the university dialup lines.
We are currently researching a method of proxy
authentication from our OPAC to provide
additional access. These e-resources are
also available on our library Web pages.

Patrons may access them through a page
that alphabetically lists all of our subscrip-
tion-based resources or through our spe-
cialized ‘Resources by Subject’ Web pages.
Again we primarily use IP authentication,
but also provide access to our off-campus
students, faculty and staff via EZProxy,
a Web-based proxy server. Patrons need only
a university computer account and pass-
word to use the proxy server; no special
browser setup is required.”

Rosen, Western Governors University:
“We have online subscriptions to the World
Book Encyclopedia, Axion Phone Books,
Books in Print, FactSearch, Health Refer-
ence Center, MDX Health, and the World
Almanac, all through FirstSearch. These
sources are accessed through the WGU Web
page. Patrons are authenticated before en-
tering the particular system by entering their
WGU Library assigned passwords.”

3) Does your library keep usage statis-
tics on electronic reference tools? If so, do
do-users more frequently access these e-
tools in the library or from a remote site?
Do they more frequently access free library
linked e-tools or library paid for e-tools?

Richardson Scales, Guilford College:
“Currently, we only have access to statistics
from NC-Live, which are still being devel-
oped. Since we do not have a local authenti-
cation system or scripting, we do not have
statistics for the other re-
sources. Once we add
scripting for remote
access to the elec-
tronic resources, we
will have access to
local and targeted
statistics. We are re-
ally looking forward
to the benefits of ac-
cur ate and detailed
statistics, mainly for
collection manage-
ment. We need to
know if the resources
that we are paying for
are being used or if
students prefer the free
resources.”

Botts and Bauschmidt, University of New Mexico: “We do not specifically track access for ready reference materials, but we do employ tools that allow us to review us-
age of electronic products in general. Further,
we recently formed a committee to assist in
compiling and reviewing access statistics
and trends. Many vendors provide usage sta-
tistics for subscription-based resources. We also
use Web server log analysis programs, such as
Webalizer and NetTracker, which pro-
vide access statistics for our Web pages.
How-
den, due to the way our campus network is set up, we do not know if the usage occurs
within the library, in other campus buildings,
or off-campus using university dialups. Our

EZProxy service is accessed by our off-cam-
pus patrons who use a commercial or non-
university Internet service provider. Review-
ing the EZProxy logs provides true
off-campus usage statistics for our subscrip-
tion-based resources. At this time we do not
know which reference resources, free or sub-
scription-based, patrons use more often. It
seems that their specific information needs
and their awareness of resources determines
which sources are used.”

Rosen, Western Governors University:
“All end-users access e-tools from a remote
site, generally their home or office. We keep
usage statistics on our subscription databases
as well as our free Web page hits. Our sub-
scription encyclopedia-type databases are
used significantly less than comparable free
reference tools from our Web pages. The hits
for the Web page are easily 50 times greater
per month than those for the subscription
databases. Of course, since the Web pages
are all open to the public, unlike the prop-
erty databases, those statistics could very
well include non-WGU students. I believe
students predominantly use the free sites li-
brarians may make available, but perhaps
even more, the free sites they have found and
bookmarked for their own personal use.”

4) End-users have been known to accept
reference information online (even when it
comes from questionable sources) rather
than use reference print resources in the li-

dary. Has this happened in your library?
If so, how have you reacted to and dealt with
this conflict?

Richardson Scales, Guilford College: “Our Reference Librarians usually find out
about the problem of students using question-
able sources from the teaching faculty. We
include Web resource evaluation in our sub-
ject-specific bibliographic instruction. Cur-
rently, we are changing the bibliographic
instruction for First Year Experience classes
to include some critical thinking about Web
resources. I hope that in the next year, with
more electronic resources available directly
through the Website, students will stop using
the questionable Websites and think of the
library as a more authoritative alternative.”

Botts and Bauschmidt, University of New Mexico: “Oh, yes! While we would
like for our patrons to consult us, the reality
is that many prefer to ‘find it on the Internet’
on their own. Of course we have all noticed
that students get younger each year — and
they seem to increasingly prefer online
resources. After all, online information al-
ways has some kind of search engine; print
resources often require reading lengthy usage
guides. Unfortunately many patrons do not
view reference librarians as human equiva-

cents to online search engines. However,
when we can ‘get them in our clutches’ we
do our best to recommend the most appro-
priate resources based on the patron’s needs;
continued on page 24
these may be print or they may be online. Often a good online resource exists; the patron just is not aware of it. One young student was using Yahoo! to find a short biography of Michelangelo. He did not have time to ‘read a book’ and was sure there would be something on the Internet. He was delighted to be shown the article on Michelangelo in the Grove Dictionary of Art. Why, it even had links to images! While library instruction programs can raise the level of patrons’ information literacy, a good one-on-one help session with a reference librarian when an information need exists (read: I have a paper due), is often the most effective way for patrons to learn to use reference materials.”

Rosen, Western Governors University: “I have heard this from a lot of librarians, though I cannot forget to take it on. Initially, I do not see it as a conflict, but as something from which we can all learn. At one time, the library was the easiest place to go for reference tools or other information. That is not true for a lot of students now, who are able to get similar information from the Web (if they have access) at home, and there is nothing wrong with that. There is a profusion of reputable sites out there as well as ‘questionable’ ones. I focus on how students find the former. Evaluating a page or site is the key, and passing those evaluative skills on to the user is the only answer. Sure, we, as librarians, can put up the best page with the best sites, but in less than two minutes, the user has linked to sites way beyond what WE said to use. If I approach a patron in a library who is looking at a Website, I, and most reference librarians, will always say, ‘let’s look at where this is from,’ or ‘I can show you how to find out whether this site is reputable.’ If the patron is not aware of these methods, they are always quite responsive when we show them how to do it themselves, and hopefully will go home and be more discriminating searchers. Unfortunately, we are only hitting a very small percentage of our users in the library any more whether we are online universities or not. The key is to get the evaluation skills out to the remote users. Other than instructors and parents, the Web page is the only way to go. Why don’t we all put up links on our home pages, near the ‘ask a librarian’ link, for a link to information about ‘How to evaluate a page,’ with a few salient points? I do not think that some pages are necessarily ‘bad.’ I think the patron just needs to be aware of where the page came from, and go from there, depending on their purposes. It is the old lesson some of us have ingrained in our minds since childhood: do not believe everything you read and always be aware of the perspective. We just cannot be as lax about this as we have been in the past, but it is the same old story, with more people. Often the feelings we (librarians and scholars) have today about some sources of information are buried in old beliefs and false securities. We never really knew the origins of many print sources for sure in the past. Perhaps the electronic era is pushing us to places we may not want to go. We should let go, see what these new users are finding out there, and just give them the tools to evaluate the information with us. This is a good thing, not a bad one.”

5) Do you see any need for print reference tools if electronic versions are available?

Richardson Scales, Guilford College: “Since Guilford College is a small college that serves a diverse student body, many with different learning styles, we need to include both print and electronic reference tools as much as our budget will allow. The more ways a student can find the information they need, the better. We will not discard a print reference source when an online version is available, but we will have to consider the additional cost of print and online on a case-by-case basis.”

Botts and Bauerschmidt, University of New Mexico: “Definitely yes. We are in a world of transition and we need to have both formats available. We have to consider patron preference. Some patrons prefer the speed and flexibility of electronic methods. Other patrons are uncomfortable with computers, preferring to search by more traditional means: indexes, tables of contents, etc. Some find it much easier to read the printed page than a screen of shimmering light. At this time we should try to provide options for both types of patrons—when we can afford to do so. Of course, the reality is that this is becoming a luxury we will not be able to afford in terms of both funding and the space that print resources require. While we are increasingly relying on e-resources, there are often times when the network goes down. Also, print resources can be used without electricity. This may become an increasing benefit with these ‘rolling blackouts’ looming on the horizon!”

Rosen, Western Governors University: “Although the answer to this is very gradually starting to change as more security becomes available concerning storage, format changes, etc., there are still a lot of unanswered questions, so for now, there is still the need for print. It depends on the particular electronic source, the institutions, their budget, their needs and their users. For our purposes, with an online library, there is no need for a print equivalent. One of the keys here is to move in the direction that the scholarly publishing organizations, such as Highwire, SPARC, BioOne or Project Muse have taken with periodicals, where scholarly organizations are controlling the archived information. Though publishers of most of the reference tools are commercial, libraries need to have more control of issues like archiving, perhaps through regional or statewide consortiums.”

6) What are the main concerns of end-users? Content? Usability? Remote Access? Print functions?

Richardson Scales, Guilford College: “Students want ease of access, usability, and print functions. They are used to the high level of functionality and options available on the Web; they expect the library to maintain that level. They prefer keyword searching, as well as being able to choose search fields. Students love easy printing as well as the ability to forward through e-mail or downloading. Many off campus students would benefit from seamless remote access. Many have gone to the large university libraries in town to use their resources out of frustration with ours. Upperclassmen are more concerned with content and depth of the information than the features available. Faculty members are primarily concerned with content.”

Botts and Bauerschmidt, University of New Mexico: “More and more we see that if a reference tool like the Grove Dictionary of Music and Musicians is available in the library in both print and online, end-users usually ask to be shown the online version. It seems that they find navigating online to be a lot easier. Also, patrons like the ability to access reference tools remotely. Our libraries usually close between ten and midnight and earlier on weekends. We have a twenty-four hour computer lab on campus and many students have computers at home. Remote access allows patrons to fit their research time into their own schedules, which are often complicated by classes, work, and family. It seems that content is becoming less of an issue with patrons. While this is unfortunate from a scholarly point of view, the reality is that the convenience and accessibility of electronic resources are what patrons value most. In our fast-paced society of cell phones and multi-tasking, this does not really come as a surprise. We should not spend too much time lamenting the demise of scholarship—there is an ever-increasing level of quality information becoming available online.”

Rosen, Western Governors University: “The main concern of online patrons today seems to be speed of obtaining material, as it is for anyone in society today. Everything is millions of times faster, and the same is true of information. Though the users may not be aware specifically, low bandwidth is the main drawback, and once that increases in the next decade, there will be major changes in all areas. I think the ease of use is important to users, which goes along with speed and efficiency. They want it now, and fast, and it better be good. It is this attitude that is driving the information industry. It works for restaurants in big cities, where only the ones that satisfy those needs survive.”

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<http://www.against-the-grain.com>
University of New Mexico: "When asked if they would use print or electronic reference tools if both were available, our respondents overwhelmingly reported that they preferred electronic formats. Speed, efficiency, ease of use, currency, and printing capabilities were commonly cited as reasons for this preference. The efficiency of search engines was particularly appreciated by many. As one undergraduate stated, 'You usually don't have to wade through a lot of subject matter to find what you are looking for.' Remote access was also listed as a determining factor. The three who preferred to use print resources said that print was easier to read and they could usually find information faster in printed materials. Although the vast majority of those surveyed preferred electronic reference tools, that same group stated that the library should have print versions even if electronic ones are available. Most cited technological concerns like computer failures or network and server problems. One faculty member wrote, 'Data in the print version is secure. Computer hacker manipulation of data is not a threat with printed material.' Some stated that print versions are necessary when all of the library computer stations are in use. Others felt that print resources should be provided for those who are not comfortable with electronic formats. One respondent said of printed works, 'You can take them and use them without having to stare at a computer.' Two members of fine arts disciplines pointed out that because of copyright issues, not all illustrations contained in print resources like the Grove Dictionary of Art are included in their electronic versions. One reason given for not maintaining a print resource is that its electronic equivalent is easier to update for currency."

Western Governors University: "All users prefer the electronic versions because of the following reasons: 'they are already at the computer when they need to use a reference source (I have access from my desk).... rather than walking across campus to the library), Web based versions are usually the current version, many good reference works online are either free or low cost, faster and more flexible than with the paper version, cut and paste capability is available, searching tools and capabilities make it easier, and the ability to search for related information is easy and less bulky.' Some said the print equivalents in their school libraries are often out of date. But, interestingly, though they all prefer electronic, most see the rewards to print and want to keep print as well, for the following reasons: 'students can learn to look up information without electronics, to serve students with additional different learning styles, and in cases where there is a lack of technology.' Other comments include, 'If I am doing a detailed research project, I'm more comfortable with paper....I guess because I don't have to go through the whole log in and wait process, print is always handy, it can be used by candlelight in a power outage.' One student/teacher said, 'On-line versions fail only if you need to refer to the information off-line, where you may need to print out the on-line version, ...It is easier to plagiarize using a computer and the cut and paste function....' (As a colleague discovered, though plagiarism becomes easier, the instructor can use the same approach to check to see if a work is plagiarized, by using a comprehensive search engine, typing in a relevant phrase from the questionable paper, and obtaining the source of the paper)."

3) How do you decide which electronic reference tools to use? Some factors might include the content, ease of use, ability to download or print, the recommendation of librarians/professors, the recommendation of friends, etc. Which of these factors influence you the most? What else influences your selection of electronic reference tools?

Guilford College: "Nearly all the students said that the major factors they consider when deciding which electronic reference tools to use were ease of use and content. Students also mentioned the reputation of the publisher. One student stated 'If it is a name I know like Britannica or Grolier, I can be pretty sure the information I get is both relevant and valid.' Other frequently mentioned factors were the number and variety of links, multi-media materials, and the ease of printing. Recommendations of librarians, teachers, and friends were also mentioned as playing a highly influential role in their decision making process."

University of New Mexico: "While reasons for selecting a particular electronic reference tool vary, ease of use and content were reported as the most significant factors. Some said that the authority of the resource helped determine their choice. Good previous experiences are also important to users. 'If I have used a resource and it was helpful I am more likely to keep using it rather than every time doing a search for a new one just to see if more information might get.' Half of those surveyed said they relied on recommendations of others such as their professors, librarians, and peers. Two replied that Website referrals influence their selection of electronic tools. Other factors mentioned included the currency of the resource and the ability to download or print information."

Western Governors University: "All of the factors influenced all respondents. As far as the most influential factor, it ranged from content, to access (what tools are at hand), to what information is needed, to an uncluttered design, to ease of use, and to the availability of relevancy ranking. Also important were cost; the ability to copy and paste, download or print; simple searching ability; appropriateness to needs; the availability and function of search engines; and currency of databases. Most users found sites through the recommendations of colleagues, friends or advisors. To summarize, the choice of an alternate route was influenced by the availability of the resources and the user's knowledge of how to use them."
electronic product is very individual, and very connected to its interface and use, unlike a book, which is more or less always a book. Though the format and design of fonts and pages of a print reference book vary, rarely does a student push it aside and say he/she doesn’t like the way it looks (though a librarian might!). Electronic products are even more driven by the users now, as well as the librarians. This is, or should be, a powerful thought for librarians who are purchasing titles, and should be a reason to expect usable products.”

4) Do you usually access dictionaries remotely or in the library? Do you usually access encyclopedias remotely or in the library?

Guilford College: “While a few students rely on print dictionaries, the majority do access dictionaries remotely. Nearly all the students polled access or will access encyclopedias remotely.”

University of New Mexico: “We asked our end-users if they usually accessed electronic reference tools in the library or remotely. Half reported that they usually used remote access. Many said they used both because they tended to work both in the library and at home. Our favorite respondent said that while remote access was necessary when the library is closed, use in the library is preferred because, ‘the staff’s help is invaluable.’ (We always like to hear that!”

Western Governors University:

a. Do you usually access dictionaries remotely (home or work) or in a library? If remotely, do you usually use a print or electronic version?

“One person summarized it as follows: ‘I prefer to access anything available on the Internet. I only go to the library for reference material as a last resort.’ Half of the respondents use an electronic dictionary (Merriam-Webster http://www.m-w.com was mentioned by one student) and half use the print, especially if at home. I think this could be an access question. If the students realized they could bookmark or create a desktop icon for a dictionary, it may be used to a greater extent. I expect this use to grow in the next year. I wonder how many people who read this may do just that after reading about the Merriam-Webster user’s response.”

b. Do you usually access encyclopedias remotely or in a library? If remotely, do you usually use print or an electronic version?

“All respondents chose to use the electronic versions of encyclopedias. This is perhaps because of the currency of e-encyclopedias, which may not be as important a factor when searching dictionaries. Searching capabilities are also more apt to be required with encyclopedias when searching by subject or keywords, and you cannot beat this function of any online source, whether you are a librarian or a patron. Encyclopedias have been available in homes in CD format for quite a while and are more familiar to many college students now. The encyclopedia on the Internet is a logical progression for them.”

Librarians’ reactions to end-users answers and comments...

Richardson Scales, Guilford College: “The biggest surprise was that none of the students initially interviewed had used our few e-encyclopedias, and only some had used any of our electronic tools beyond the journals and indexes. I found out later from the surveys that many of students had found their own free electronic reference tools, some which were very authoritative, without the library’s assistance. This was especially shocking since most of them were library student workers and upperclassmen and knew the library’s print resources well. In response, I had a few students experiment with the Encyclopedia Britannica and Grolier Multimedia Encyclopedia. I did not do bibliographic instruction, but I was available to answer questions. I observed their reactions as they used the e-encyclopedias. While watching the students use them, I noticed they were enjoying the links to other resources and the multimedia features, such as the national anthems available in Grolier Multimedia Encyclopedia. They were experiencing some frustration in finding information in the articles and the oversimplification of some subjects. In observing them and from their surveys, I found that they enjoyed the benefits of keyword searching and targeted searching only available in electronic resources. The best news for Guilford College from this survey was that the students are very discriminating about which resources, both print and electronic, they use. The upperclassmen in particular noted that while the two e-encyclopedias were fun to work with and had greater search capabilities, they preferred more authoritative and detailed resources. This is very good news since this group of students did not benefit from our new First Year Experience bibliographic instruction. I strongly believe that if we could afford more academic electronic reference tools, such as the OED and the Grove encyclopedias, and if we provided seamless remote access through the catalog or the Web page, that the students at Guilford College would use these resources and look at the library as a reliable source of information.”

Botts and Bauerschmidt, University of New Mexico: “It seems reasonable that, when given a choice, so many surveyed prefer electronic reference tools. The convenience and 24/7 accessibility of electronic media make them very desirable in our fast-paced world. Certainly in our experience at UNM when a patron comes to the reference desk and learns that the information they need is available in both print and electronic formats, more often than not they seem to choose electronic. What was surprising to learn is that while our respondents preferred electronic resources, so many of them believed that libraries should maintain print equivalents. It is interesting that they felt that libraries need print reference tools for the same reasons as their electronic counterparts: convenience and accessibility. As many noted, a variety of technology-related problems make electronic tools less reliable to a certain extent. Print materials can always be accessed without the aid of technology, provided that the library is open. Learning that our patrons have an expectation of uninterrupted access to information is indeed valuable, but it is certainly not going to make it any easier for us when it comes time to make those inevitable budgetary decisions to cancel print resources!”

Rosen, Western Governors University: “My perspective on these questions is prejudiced since it is from someone who deals primarily with virtual students. When some one says ‘library patrons’ to me, I do not imagine students sitting at library computers, or standing at the reference desk. I think of people sitting at home on their computers, munching snacks. Concerning libraries today, there is little difference between on and off campus students. As we think about these questions and the answers from the users, we have to realize that the ‘reference tools’ do not have the same definition as they may have had 10 or 20 years ago. Today, the reference tool is the Web. It is not an isolated, guarded, encyclopedia in the corner of the library where the librarian carefully removes it from the shelf and searches through the pages for the expectant patron. We have to be aware of the free sources as well as the paid-for ones. The patrons do not and never will know the difference, nor do they need to. As most of us have been doing the last several years, we have to continue to change our old mindsets and figure out ways to make this new model work for all of us and for our sophisticated students/patrons. For these users, especially those just entering their higher education careers, the Internet is a logical source of information. These are more than relevant and interesting questions to ask ourselves and our patrons today. When we dig out this issue several years from now, it will cause an entirely different and amusing reaction. I think it is important to question where we are in this e-world, in order to decide where we want the library to go, to decide how we want to get there, and to envision libraries and users from the broadest perspective.”

Conclusion and final thoughts...

What are the differences among the institutions? What are the differences between the perceptions of the librarians and the end-continued on page 30

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A Two Part Review: The Encyclopedia of Astronomy and Astrophysics —
Views from a Professor and a Student

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A Professor’s View

by Robert Dukes (Professor of Physics and Astronomy, College of Charleston) <dukesr@cofc.edu>

Introduction
This is one part of a two-part review of The Encyclopedia of Astronomy and Astrophysics. I am an astronomer with over twenty-five years experience teaching astronomy to undergraduates and supervising many of these undergraduates in their research. I am writing this from my perspective. The companion piece has been written by one of my students discussing the Encyclopedia from the student's point of view. This student is majoring in physics with a concentration in astronomy and has been involved in astronomical research for nearly two years. Hence he represents the type of student that I feel will benefit most from the Encyclopedia.

The Encyclopedia has an online edition available on a yearly subscription basis. Faculty need to be able to both recommend whether or not a library should obtain this subscription and then, if the answer is yes, decide on how to best utilize it. The advertised advantages to the online edition are access from any computer on a campus, powerful search capabilities, and frequent updates. This review will be based on both the content of the Encyclopedia and how well the advertised advantages are met.

Using the Encyclopedia
The Encyclopedia consists of long articles, short descriptions or definitions, and brief biographies. The long articles are signed by the authors who for the most part are recognized authorities in the subject matter of the articles. How then will I use the Encyclopedia with students? I will use articles in the areas I conduct research with undergraduates in to provide background information for new students. I will use some of the less technical articles (or less technical parts of certain articles) to supplement our introductory astronomy text. I suspect that other instructors will also. As every instructor knows, introductory texts are never as detailed as instructors would like in certain areas. Instructors can individualize their courses through special lectures or handouts. The Encyclopedia provides yet another means. Especially appealing is the fact that the articles can be downloaded as PDF files.

I have examined some of the articles in fields I am familiar with as well as fields I would like to learn something more about. In every case I have learned something. For example, the article on Variable Stars gives one of the best introductions to “non-radial pulsation” that I have seen. This will definitely be required reading for all of my research students. I will assign portions of it to my introductory students. Similarly, the article on “Gamma Ray Astronomy” helped me learn something about the field of research of two of my colleagues. One of them has indicated that he, too, will make this required reading for his students.

Level of Material/Treatment
The level of the material in the individual articles is quite varied. This presents a problem for the potential user. The majority of the long articles are suitable for advanced undergraduates and even as a review for gradu-

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users? Surprisingly little! There were few differences among end-users whether they are from traditional or virtual schools. Little difference in perception between the librarians and the end-users was found. The librarians were just as open, enthusiastic, excited, and willing to experiment with electronic reference tools as the end-users.

When planning this column the author-editors expected to find differences, possibly significant ones, between the traditional brick and mortar schools, Guilford and UNM, and the virtual school, WGU. As expected, the WGU end-users had more experience in using online reference tools than most of the end-users from UNM and all those from Guilford, but their attitudes toward these tools were remarkably similar. Specifically, the WGU end-users were more aware of the variety of electronic reference tools available to them. This is to be expected since WGU has no physical campus with a library building that houses print materials. The librarians from both Guilford and UNM commented on the need for more bibliographic instruction and one-on-one sessions for patron information literacy and to improve critical thinking about evaluating Web resources.

Print is not dead! Even the majority of end-users from WGU felt that print versions of ready reference tools should be retained, as did most of the Guilford and UNM end-users. Reasons cited included differences in learning styles and the ability to use print “when the computers are down or the electricity goes out.” This is not to say that most end-users do not prefer the electronic version. All the librarians shared this view, but expressed concerns that continually shrinking budgets may make this more challenging in the future.

All the librarians were aware that sometimes students accept any online reference resource, even a questionable one, rather than use a print reference source. None of the librarians felt challenged by this, rather they felt that it presents an opportunity for them to work with end-users and show them how to better evaluate these resources. Some end-users’ preferences for using any electronic reference tools that they can find should not be viewed as a conflict for librarians but as a learning opportunity—“a good thing, not a bad one.”

What are the major concerns of end-users and just how critical are they? End-users want to find information quickly and easily, they want it to be current, and they want to be able to access it anytime from anywhere. What could be simpler than that? While some are concerned about the quality of the resource, very few mentioned it as a concern. The end-users are not aware of the difference between the electronic reference tools that the library pays for and those available free on the Internet. And really, why should they be?