
**Selected Findings
from
The UC/CMI Journal Use
and
User Preference Studies**

**The University of California
Collections Management Initiative (UC/CMI)**

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Reaping the Harvest: Studies of Electronic Journal Use
Ohio State University, October 2003

CMI was a two-and-a-half year study, launched in January 2001, as a collaborative undertaking of the UC Libraries, with generous support from the Andrew W. Mellon Foundation. This presentation will focus on the project's quantitative and qualitative findings.

What the Project Involved

- Removing from campus libraries selected print journals for which electronic access is available, and relocating those journals to storage.
- Gathering objective data, including cost and usage data, for both print and electronic versions of 300 journals.
- Surveying user attitudes and preferences with regard to the use of Digital and Print journals.

Three principal components of the project were:

- i. To study the use of journals in their print and digital formats.
- ii. To develop a comprehensive cost model allowing analysis of the cost trade-offs of various ways of treating print and digital. Cost modeling work is being done by Professor Michael Cooper of UC Berkeley's School of Information Management and Systems; his report is nearing completion, and I'm not really planning to discuss its findings today.
- iii. To survey of faculty, students, and staff regarding their attitudes and preferences.

Project Phases

I: Journal Use (October 2001–September 2002)

About 300 journal titles were selected by campuses from a universe of about 3,000 titles that met the following requirements:

- a Universitywide digital subscription,
- held in print by at least two campuses, and
- suitable use data available from the publisher.

UC/CMI Journal Use Study: Titles

Subject Category	Number of Titles	Control Campus Usage			Experimental Campus Usage		
		Print	Electronic	Ratio of Print to Electronic	Print	Electronic	Ratio of Print to Electronic
Arts & Humanities	22	528	5,475	0.096	46	10,602	0.004
Life & Health Sciences	130	3,601	34,449	0.105	118	84,584	0.001
Physical Sciences & Engineering	102	1,635	54,757	0.030	24	59,207	0.000
Social Sciences	26	280	2,812	0.100	13	5,787	0.002
Grand Total	280	6,044	97,493	0.062	201	160,180	0.001

The ca. 300 journal titles selected were apportioned amongst four general subject categories:

- Arts and Humanities (ca. 10%)
- Life and Health Sciences (ca. 45%)
- Physical Sciences and Engineering (ca. 35%)
- Social Sciences (ca. 10%)

UC/CMI Journal Use Study: Publishers

Provider	Total Titles
ACS Web Editions	11
American Physical Society	3
BlackwellScience	18
Company of Biologists	1
Elsevier	130
IDEAL	15
Institute of Physics	11
JSTOR	44
Project Muse	17
Royal Society of Chemistry	1
SIAM	5
Wiley InterScience	24
TOTAL	280

Good representation across twelve publishers.

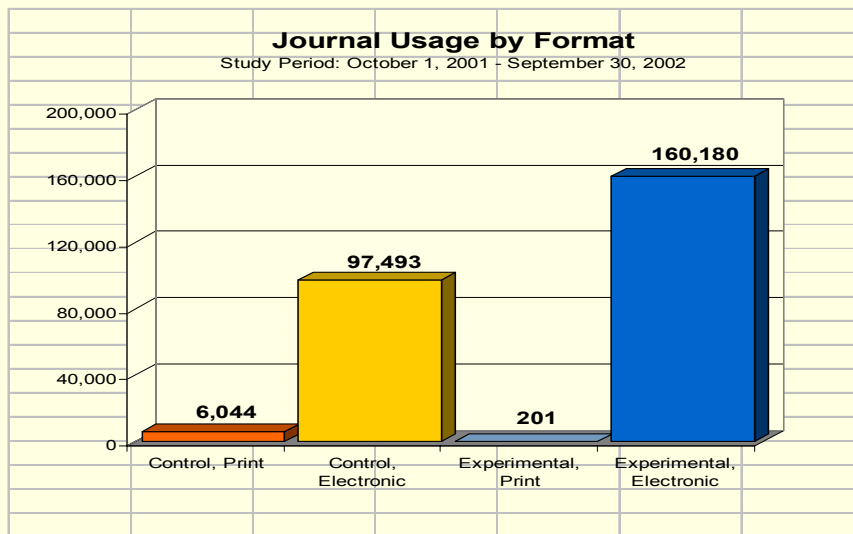
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The use study, as I said, ran for one year, October 2001-September 2002. For each title, one campus sent to storage the issues of the title that were available in digital form, and another retained these issues on its shelves and closely monitored their use.

During that period, data on digital use was collected from vendors for both campuses. For print use, at the campus that retained print (we called these “control” campuses), all reshelfings by library staff were recorded; at the campuses that stored print (we called these “experimental” campuses), all requests for recall from storage were recorded.

UC/CMI Usage Summary



Journal Usage, Conclusions:

In all four general disciplinary areas, digital use exceeded print use by at least an order of magnitude. Even allowing for differences in the way use of the two formats was measured, differences of an order of magnitude and greater are significant, statistically and otherwise.

Digital use of journals was considerably higher than print use, at both *control* and *experimental* campuses. Journal issues removed to storage at *experimental* campuses were not frequently requested (201 volumes only).

Year-to-Year Change in Digital Use

Subject Category	Control Campus Electronic Use			Experimental Campus Electronic Use		
	Prior Year Uses	Study Year Uses	Change from Prior Year to Study Year	Prior Year Uses	Study Year Uses	Change from Prior Year to Study Year
Arts & Humanities	4,763	4,256	-10.6%	5,278	7,733	46.5%
Life & Health Sciences	20,333	27,407	34.8%	50,665	65,183	28.7%
Physical Sciences & Engineering	32,466	44,607	37.4%	33,194	46,937	41.4%
Social Sciences	1,885	2,132	13.1%	3,398	4,546	33.8%
Grand Total	59,447	78,402	31.9%	92,535	124,399	34.4%

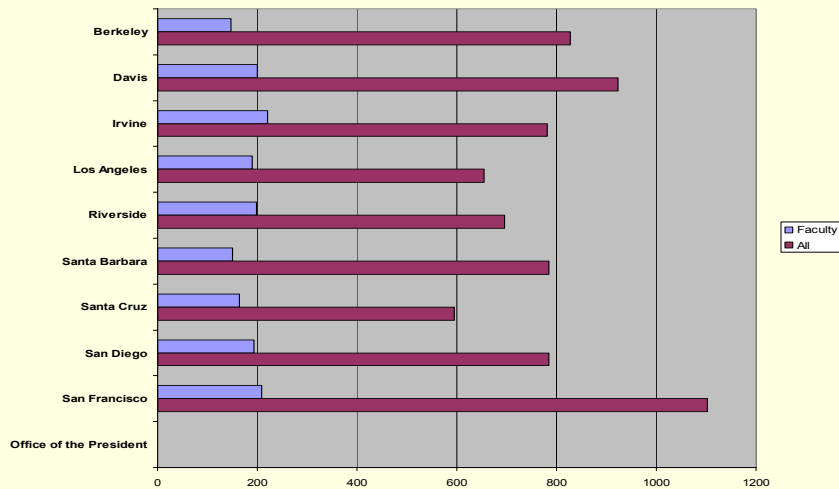
Digital use was greater at *experimental* campuses than at *control* campuses. At first glance, this appeared to be a result of the experiment – i.e., that removal from the shelf drove an increase in digital use. However, digital use was greater at *experimental* campuses both during the study and in the year before the study.

II: User Preference Survey

Between February and March 2003, 20,000 UC faculty, students, and staff were invited to participate in a User preference Survey. The stratified random sampling methodology employed in the survey provided for campus-level significance testing for the responses of faculty and graduate students, and systemwide significance testing for undergraduates, campus professional staff, and health science professionals.

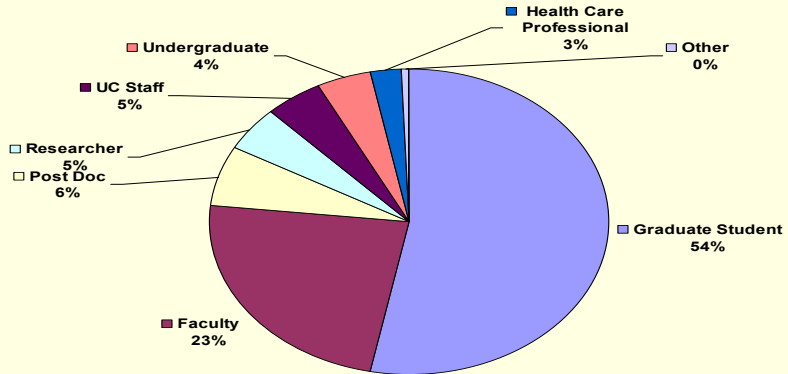
More than 7,000 responses were received, a response rate of over 30%.

Survey Respondents by Campus



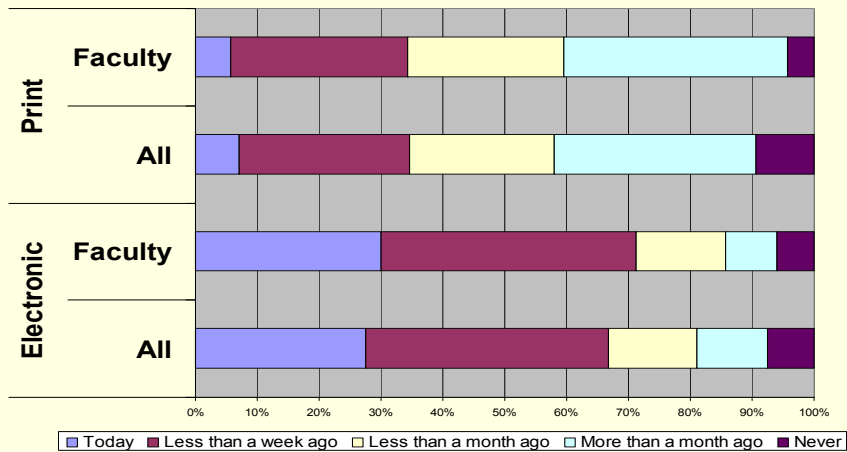
Response rates were fairly even across the campuses, although the preponderance of UCSF Health Sciences faculty and graduate students (indeed, they have no undergraduates) combined with our oversampling of those two respondent groups to result in a particularly high response rate at that campus.

Survey Respondents' University Affiliation



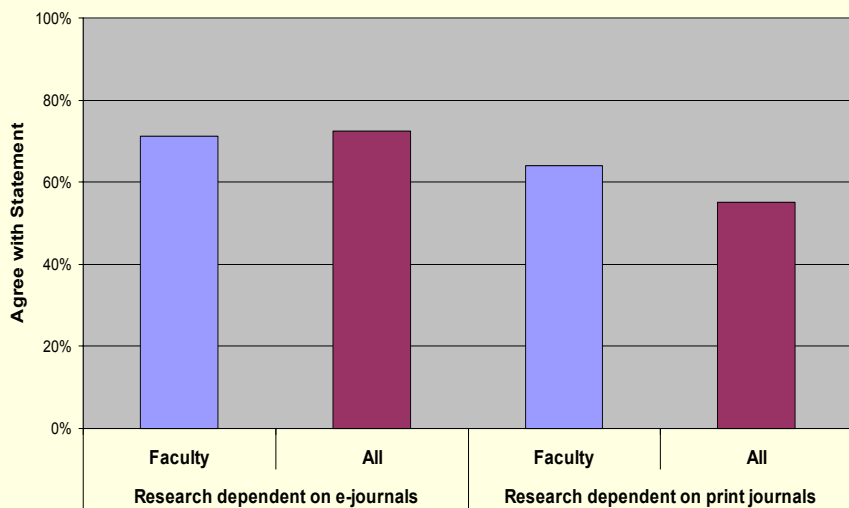
The results of that oversampling can be seen here in this chart detailing respondents by University Affiliation. Because of the over-representation of faculty and graduate students in the sample, owing to the stratification methods used in the sampling plan, aggregate statistics can be a bit misleading. As a consequence, in many of the slides that follow results are presented side-by-side for All Respondents and for the Faculty alone.

Most Recent Use of Journals



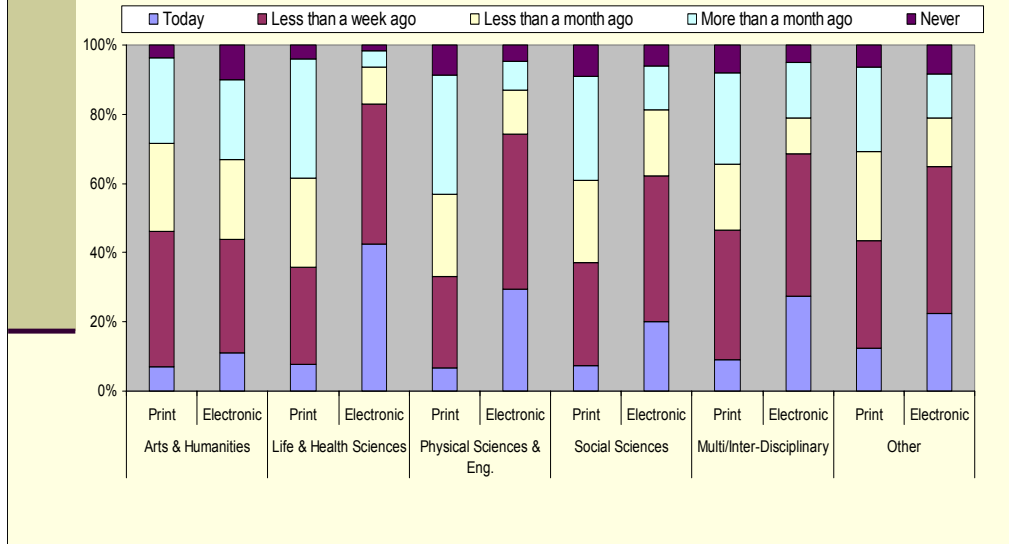
The data show that ejournals are popular: while about a third of respondents had used a print journal within the last week, approximately two-thirds had used a digital journal during the same period.

Format Dependency



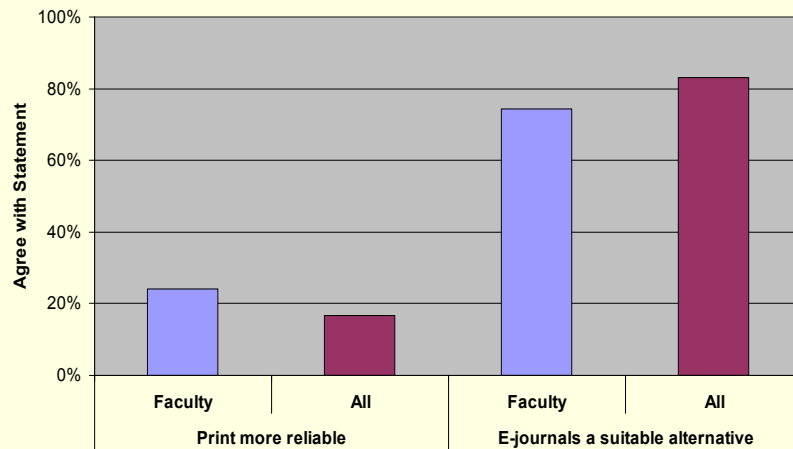
Both Faculty and All Respondents generally described their research as being dependent on both print and electronic journals. That said, more respondents, including Faculty, described their research as being dependent on electronic journals than did on print journals.

Print vs. Electronic Usage by Broad Discipline



As expected, the frequency of electronic usage—or at least the **recency** of electronic usage—was lowest in the Arts and Humanities. Even in that disciplinary category, however, more than 40% of respondents had used an electronic journal within a week of answering the survey.

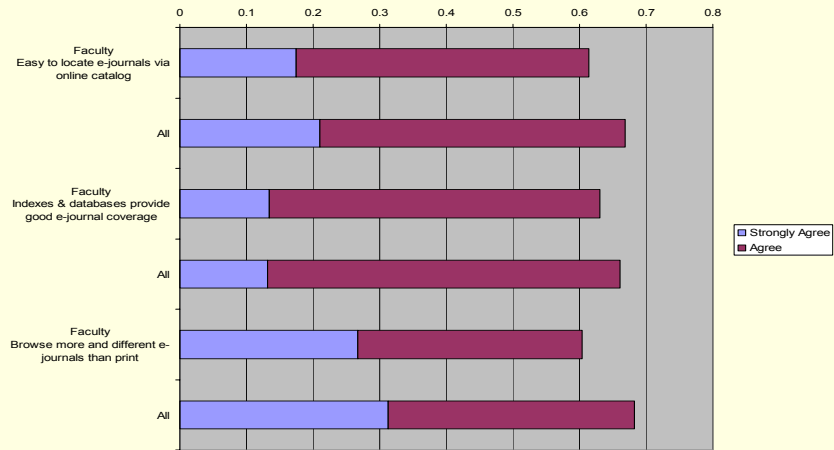
E-Journals as Print Alternative



Uniformly strong preferences for digital:

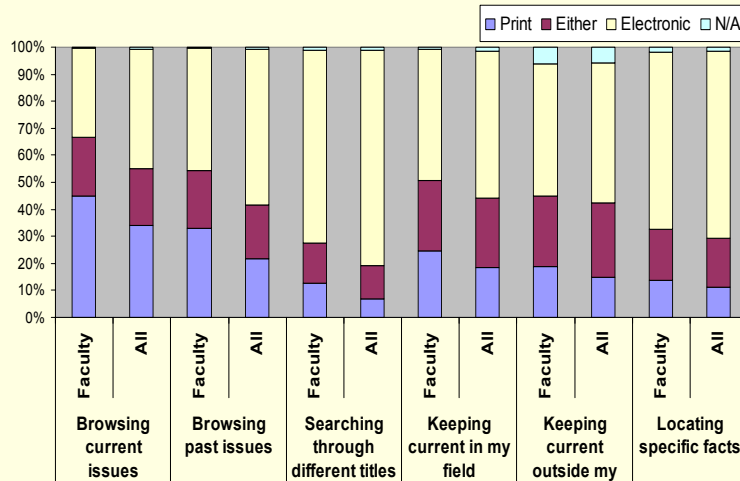
- Less than 25% of Faculty and less than 20% of All Respondents agreed with the statement that print journals are more reliable than electronic.
- Conversely, over 70% of Faculty and over 80% of All Respondents agreed with the statement that electronic journals are a suitable alternative to print.

Access Characteristics



Over 60% of Faculty respondents and almost 70% of All Respondents found electronic journals easy to locate in online catalogs and well represented in A&I databases. Whether this is cause and effect or not isn't clear, but roughly the same percentages of respondents indicated they were likely to browse more and different electronic journals than print.

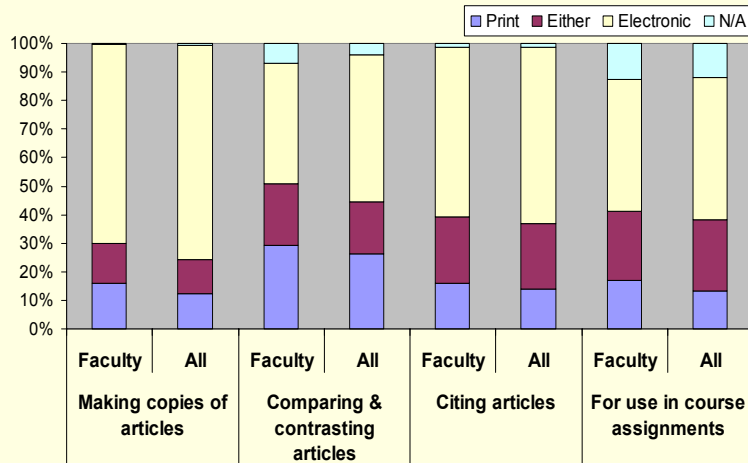
Types of Use: Discovery



When asked what kinds of uses they put electronic journals to, almost 60% of All Respondents and almost 50% of Faculty respondents indicated they prefer electronic for browsing past issues. Surprisingly, almost half of All Respondents, and a third of Faculty, also indicated they preferred electronic for browsing current issues.

Electronic journals were also preferred by Faculty for keeping current inside and outside their field by very nearly 50%.

Types of Use: Production

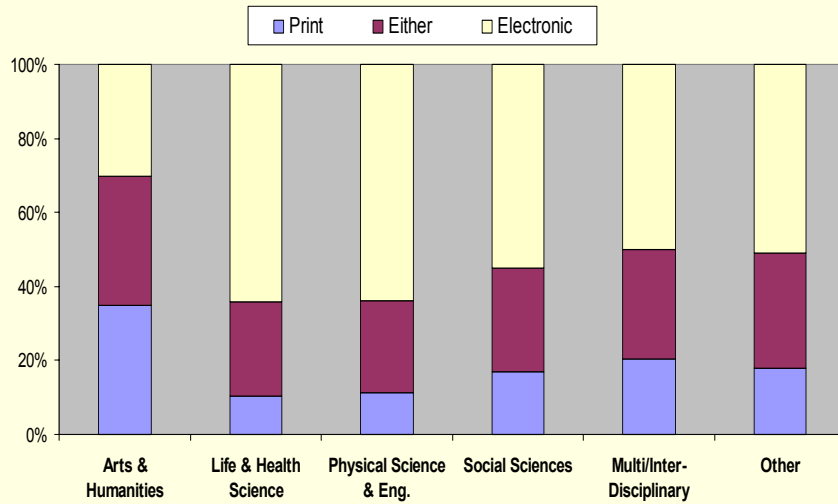


Faculty preferred electronic journals over print for copying articles and citing them.

Comparing and contrasting articles was, however, not a use to which electronic journals seem yet to lend themselves (perhaps because of screen real-estate limitations).

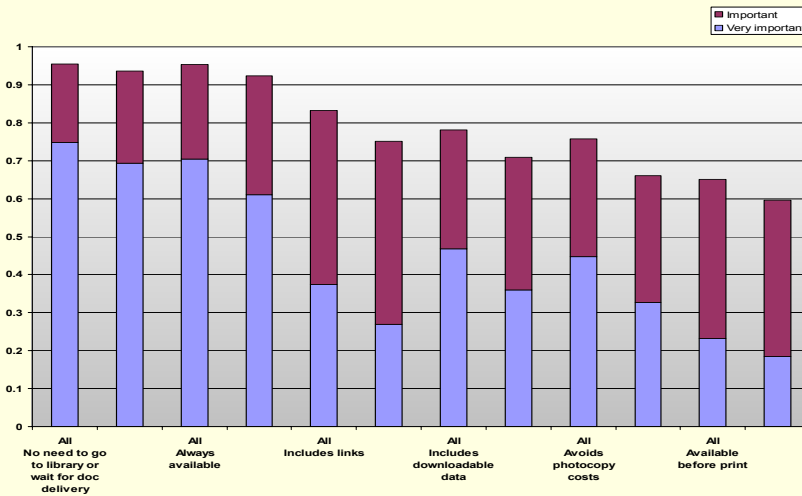
And, interestingly, use of electronic journals in course assignments by faculty still falls below 50%.

Format Preferences for Use in Course Assignments by Broad Discipline



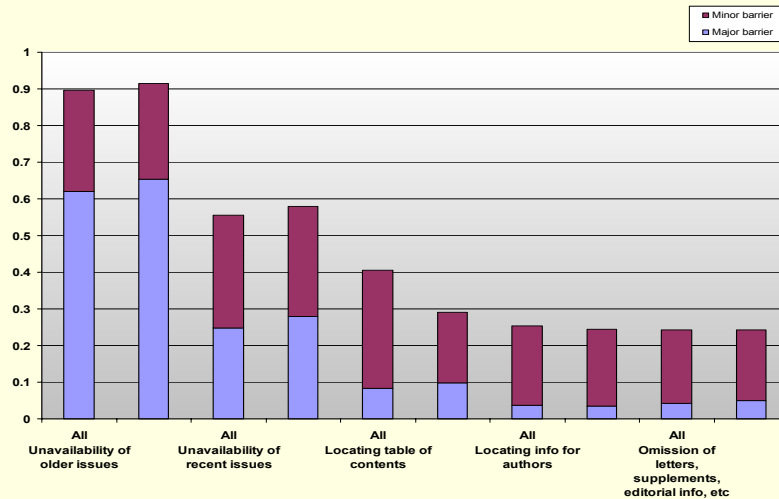
Here, too, the Arts and Humanities lag behind the other disciplinary categories.

Advantages of Electronic Journals



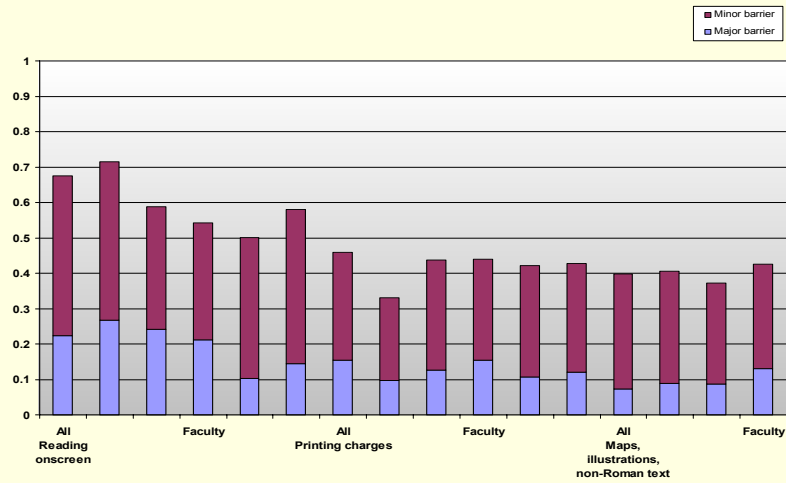
When it comes to the advantages of Ejournal use, the “Library-Without-Walls, 24/7” nature of the content is a clear favorite, as is the availability of related information, including links and downloadable data.

Content and Coverage Barriers



The highest barrier to Ejournal use is content coverage. Unavailability of older and recent issues in electronic form was cited by All Respondents as a barrier to use, with short back files cited as a major barrier by over 60% of respondents.

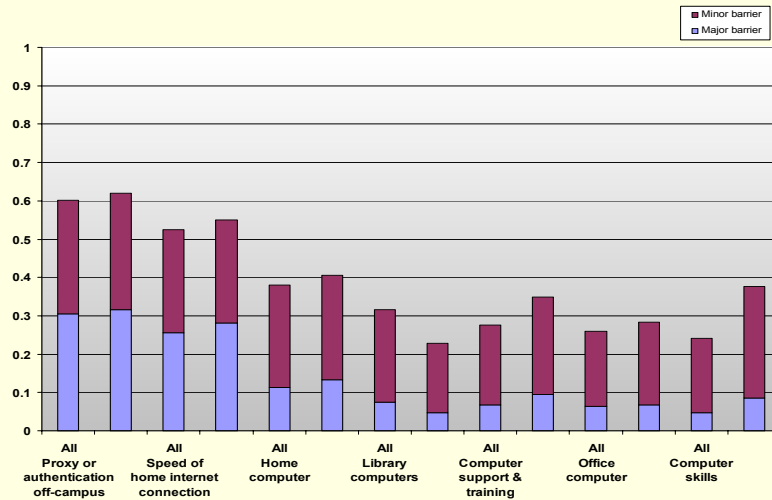
Usability Barriers



“Ease of Use” barriers cited by respondents included:

- Reading on-screen;
- Annotation limitations; and
- Difficulties moving between sections of articles.

Computing Barriers

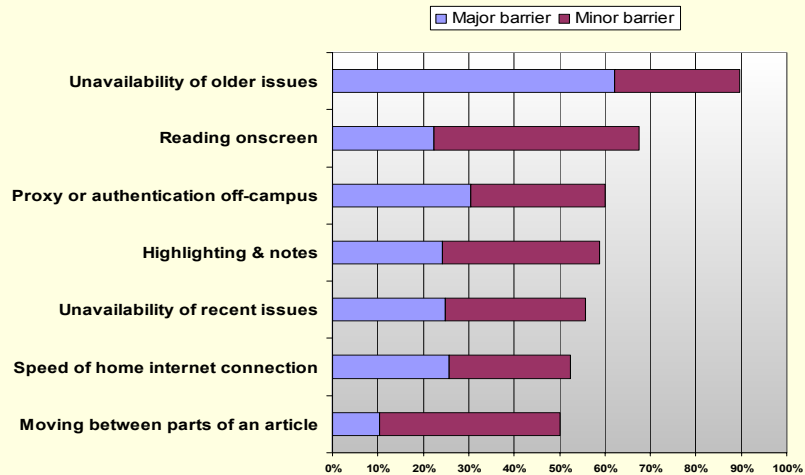


Finally, “Computing Equipment” barriers to use cited by respondents included:

- Off-campus authentication difficulties; and
- Slow Internet connectivity speeds at home.

One point on which Faculty dramatically diverge from the rest of the respondents is that Faculty appear almost twice as willing to acknowledge that deficiencies in their own computer skills present a barrier to effective use of Ejournals.

Barriers: Summary



This slide summarizes the 7 (out of 20 total) barriers identified in the three previous slides that were reported as problems by 50-60% of our respondents. It is evident here that the lack of backfiles is perceived to be the major impediment to effective use of digital journal collections, followed by difficulty with reading on-screen, and difficulty authenticating from off-campus.

Statistical Significance of Demographic Variables

- Demographic differences of degree, not kind
- Variables statistically significant, but in most cases relationships not strong (Cramer's $V < 0.10$)
- Strongest variable = Affiliation
- Followed by:
 - Discipline
 - Age
 - Gender
 - Campus

Finally, the CMI Project Team has analyzed the statistical significance of the various demographic variables in the project, and concluded that the demographic differences are those of degree, not of kind.

Demographic variables are statistically significant, but in most cases the relationships are not strong (Cramer's $V < 0.10$).

Strongest variable = Affiliation.

Followed by:

- Discipline
- Age
- Gender
- Campus

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<http://www.ucop.edu/cmi/>
Brian E. C. Schottlaender
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We are now finalizing our report to the Mellon Foundation. This will be posted, along with publishable data, on the project Web site, at www.ucop.edu/cmi. Publications will follow over the next six months or so.

It is important to note that this study does not necessarily support a wholesale and thoughtless transition from print to digital. The data show that in many cases, a significant minority still prefers print, and likely for good reasons. If you will remember, there were 201 items recalled from storage. We asked requestors to complete a questionnaire in those cases, and respondents provided sound reasons for wanting to use the print – in most cases, because the content they wanted wasn't present in the digital version. There were other reasons as well; for example, one professor had a class assignment that required students to investigate the advertisements in a complete run of a particular journal.

In light of these findings, and their limitations, the UC libraries are actively considering reasonable principles for transition from print to digital. Foremost amongst these should be:

- close consultation with faculty, and
- provision for reasonably rapid access to an original print copy.

As it happens, UC is uniquely positioned to act on these findings and principles: