

E-Journal User Study Results and Preliminary Analysis

E-Journal Expert Workshop

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Qualitative Methods

- In-depth interviews with scientists and health professionals
 - Life sciences academic scientists
 - Medical practitioners
 - Government
- Workshop and teleconference
- Internal IFTF expert workshop
- Content analysis of unsolicited feedback from survey 1

Quantitative Methods

- **Online Survey 1:** May 2001, n=12,465, members of mostly American scientific societies in the life sciences (74% located in the U.S. and Canada)
- **Online Survey 2:** November 2002, n=10,086, users of e-TOCs or citation alert services from lists of alert subscribers for life sciences journals (58% located *outside* the U.S. and Canada)



SESSION 1:

Usage Frequency, Preferences, and Value

- E-journal usage routines and preferences are contextual
- Paper and e-journals are co-evolving media that support thinking
- E-journal value lies in supporting diverse information practices

THEME 1:

E Journal use is a regular *practice*

- Last retrieved, read or downloaded full text:
 - 39% yesterday or today
 - 35% within the past week
 - 16% within the past month
- How often retrieve, read or download:
 - 19% daily
 - 49% weekly
 - 21% monthly

- Demographics:
 - Younger scholars
- Scholarly infrastructure:
 - Scholars with institutional subscriptions
- Professional characteristics:
 - Biologists
 - Non-MDs
- Technological infrastructure:
 - Frequent internet users
 - Those who have computers, printers AND internet access BOTH at work and at home

Factors Shaping Idiosyncratic Practices and Choices

THEME 1

- Scholarly goals – information need
- Work context – time and place
- Scholarly infrastructure – resources
- Professional characteristics – field
- Technological infrastructure – access
- Formative tech experience – expectations

- Smaller chunks of information, faster
- Patient care rather than academic research
 - Less likely to use e-journals for full-text retrieval
 - More likely to use hyper-linking features
 - More likely to feel interfaces waste time
 - Less likely to cut down on print journals
 - More likely to say videos/graphics a problem

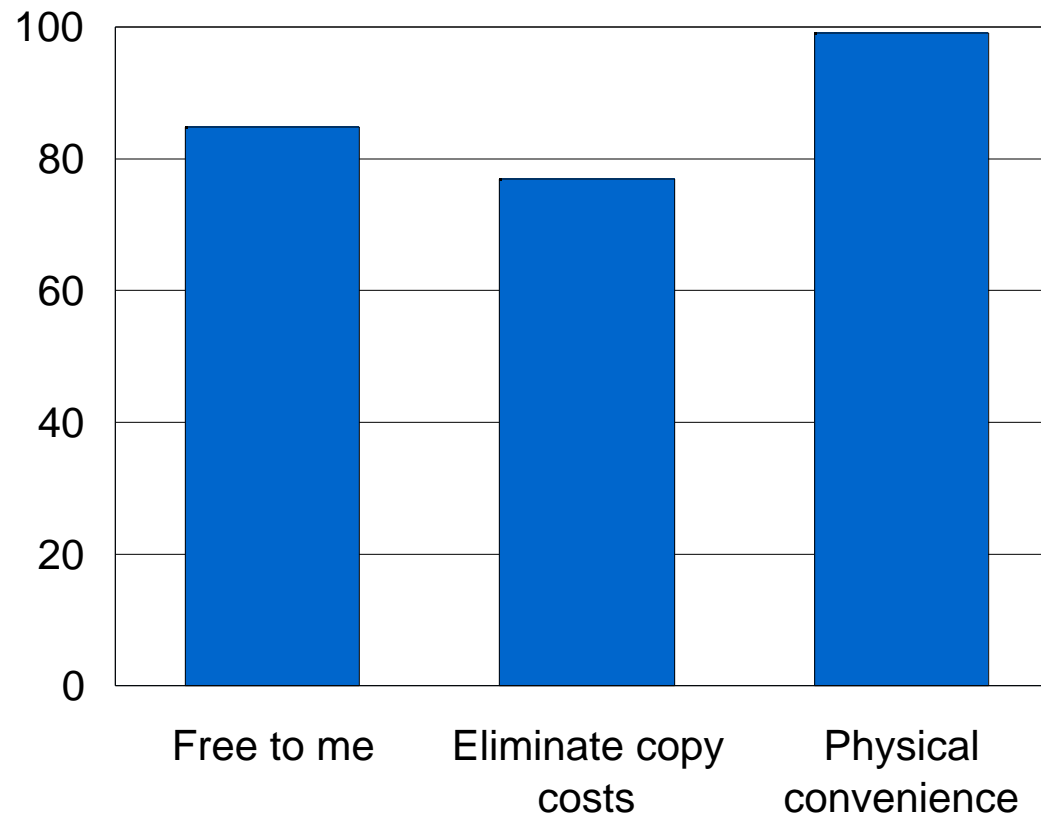
Theme 2: E-journal Value Emerges From Leveraging Broader Ecologies

THEME 2

- Accountable to the print and Internet worlds
 - Expectations from both media
- Used in combination with technology clusters and features
 - Access to the computer, printer and Internet correlates with high e-journal usage frequency
- Paper vs. electronic is tradeoff misleading

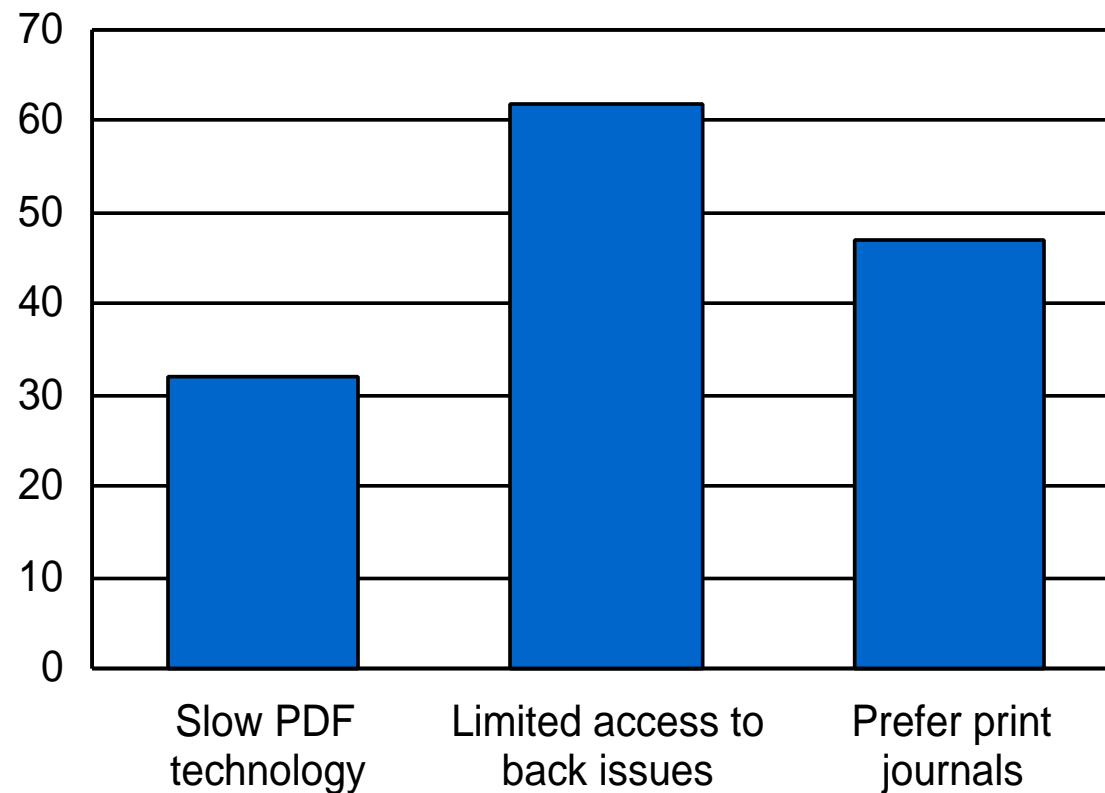
77% Prefer E-Journals For Retrieving Full Text Articles

Percent of scholars agreeing



32% Disfavor E-Journals For Retrieving Full Text Articles

Percent of scholars agreeing



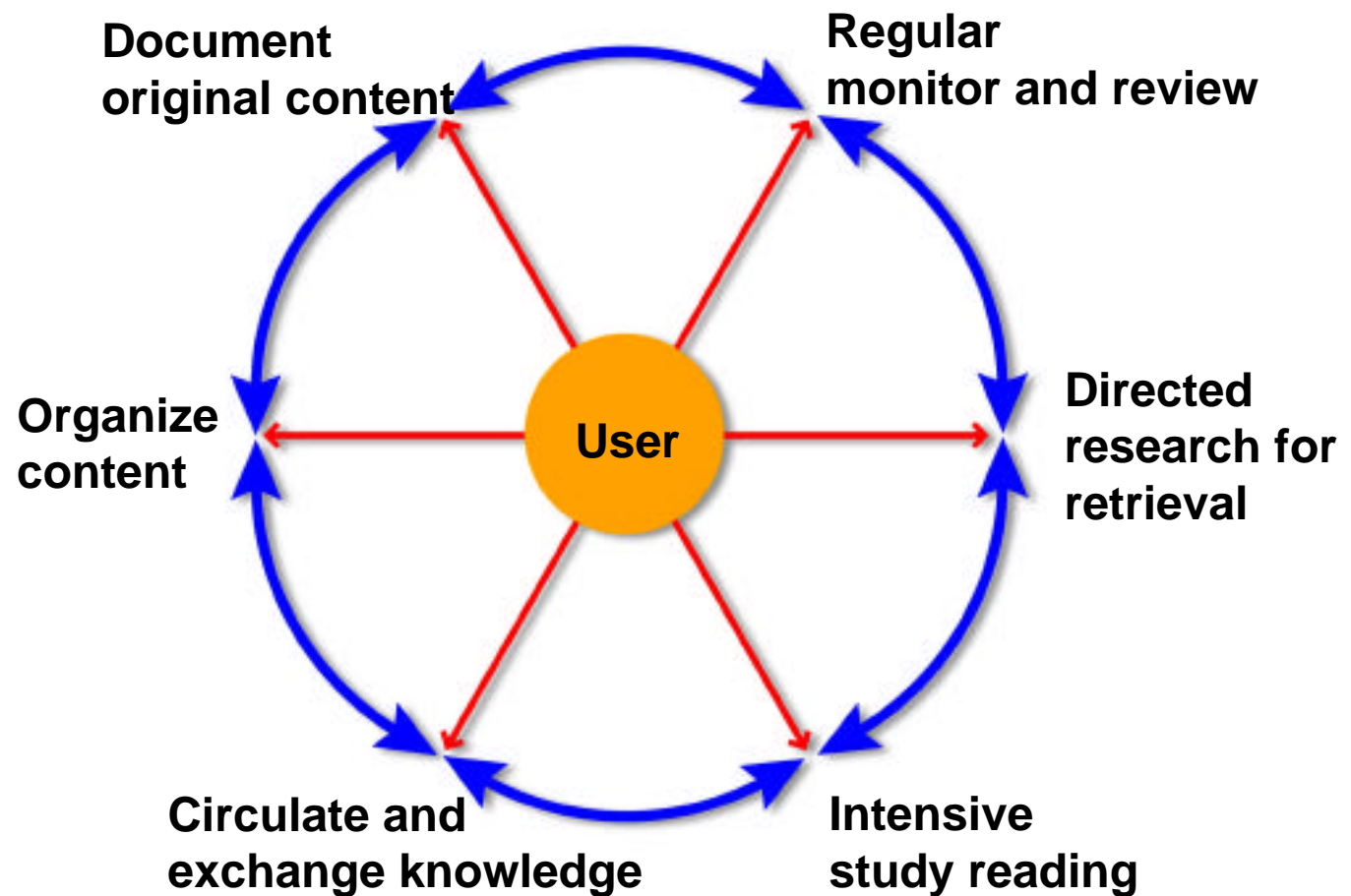
THEME 3: E-journal Value Lies in Supporting Diverse Practices

- Distinct information needs shape how and why scholars:
 - Use e-journals and printed journals
 - Combine and leverage use of printed and electronic journals
 - Select distinct features under certain conditions

E-journals Increase in Value When They Support a Range of Information Practices

THEME 3

Six core information practices:



Monitoring/Reviewing to Keep Current

THEME 3

Covering a broad knowledge domain to get exposure to new and emerging ideas.

- Average 12 journals regularly browsed
- Top 3 reasons for signing up for alerts
 - Staying current with articles in my field
 - To scan more journals that I would otherwise have time for
 - To obtain knowledge of new research/practice as early as the information is available

- More journals browsed, more likely to:
 - Find all features useful, even pay per view
 - View more screens per search
 - Access through institution
 - Be an effective searcher – fewer problems, concerns
 - Prefer PDF and reading full-text articles on screen (less likely to print out)
 - Prefer PDF for viewing figures
 - Cancel personal printed journal subscriptions

Conducting Directed Research for Retrieval

THEME 3

Finding and evaluating specific content for retrieval.

- Most immediate perceived value is from searching, according to interviews
 - Hyperlinking features
 - Lack of back issues

Objectives

To establish a base or starting point

To create paths and stay oriented

To assess content for use

To retrieve content for application

Why Scholars Use E-Journals

To get into the literature from a base that provides options

To flexibly navigate a growing body of literature

To triage content and identify relevance using article descriptors and metadata

To have flexibility of format for retrieval based on scholarly goal

- Where scholars start:
 - 58% start at PubMed
 - 24% Another multi-journal search website (Ovid, Science Direct, etc.)
 - 7% Online citation index
 - 6% Library webpage
- How many results:
 - 38% read between 2-3 screens
 - 34% read 4-5 screens
 - 11% 6-9 screens
 - 4% read more than 10 screens

- Top *frequent* search problems:
 - Articles that are not available in full text online without paying (67%)
 - Too many results returned from my search (41%)
 - Results not well sorted to my criteria (38%)
 - Articles on topics I wasn't interested in (28%)
 - Key words do not accurately represent the content (27%)

Goal is to dissect information, extract knowledge, make sense of ideas.

- Average 7 journals regularly read
 - Often done away from office or lab, outside of daily work routines
- Scholars like real paper – *even when searching*
 - (*Preference for reading on the screen*)
 - 42% PDF
 - 14% html
 - 43% print out full-text articles rather than read on screen

Creating and maintaining social relationships through the exchange of content.

- 43% of scholars say that e-journals make it easier to exchange information with colleagues
- Useful features:
 - linking to authors' emails (52%)
 - websites (42%)

Placing retrieved content into larger context.

- Personalized mini-libraries
- 53% of scholars felt e-journals help them do this
- Scholars have unmet needs in organizing and archiving paper and electronic formats
 - Lack of back issues online makes electronic archiving impossible
 - Lack of back issues more problematic to younger scholars, biologists, academics, European scholars.

Writing and publishing.

- Writing process accelerated by faster searching and retrieval
- Electronic submissions
 - 57% find useful, 30% would like to try
- Online peer review
 - 46% find useful, 34% would like to try
- Bibliographic work simplified

SESSION 1: Key Questions

- How can e-journals provide different value propositions for different groups of users?
- How can publishers and libraries partner to support *both* a paper and electronic scholarly practice?
 - Problems, challenges of maintaining paper?
 - Critical synergies?
- How can e-journals support the diversity of information practices?



SESSION 2: Efficiency, Scholarship, & Media

- E-journals improve efficiency
 - E-journal content disaggregation supports new kinds of scholarly thinking processes
 - The emerging “gray zone” blurs knowledge genres
 - Core sources of value are expanding in the online environment
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Theme 4:

More Efficient Access to Knowledge...

THEME 4

- 92% of all scholars agreed e-journal usage “makes current awareness of recent research easy and fast”.
 - Fewer trips to the library
- An increasing reliance on online content
 - 74% of all scholars agreed that “the more I use online retrieval of research content, the less I bother to obtain content offline”.
 - Only 34% felt that e-journals waste users’ time with unfriendly interfaces

More Efficient Exchange and Organization of Knowledge

THEME 4

- *69% of those who felt an effect* agreed they personally “exchanged more journal articles with colleagues, because e-journals make distribution of articles easier and less costly.”
- *53% of those who felt an effect* said they “became more organized in archiving papers by using e-journals, creating my own mini library.”

- 77% prefer online full-text retrieval because it eliminates photocopying costs.
 - Increased printing costs?
- Pay per view gets mixed reviews:
 - #1 concern *among alerts users*
 - 52% of all scholars agreed they “will do without an article or go to the library rather than pay any amount for online access to full-text articles, no matter how small that amount”.
 - As increase with age, more positive toward PPV
 - Survey #2 data?

Seeds of Transformation? Better Peripheral Vision

THEME 4

- 67% of all scholars felt e-journals “increase exposure to non-peer reviewed papers” ...
 - 17% strongly agreed, 50% somewhat agreed
- 71% of those who felt a personal effect agreed that e-journal usage “increased the number of papers I read outside my primary discipline”—and those *outside the US and Canada* were most likely to agree.
 - 33% strongly agreed, 38% somewhat agreed

- Public access to larger, more complete sets of data and results
 - 58% of alerts users linked from article to scientific database
- More searchable data encourages reduction of duplication and plagiarism
 - “People will have to do better science!”

THEME 5: Content Disaggregation Supports New Thinking Processes

- Different granularity of information
- Electronic articles are modular
- Textual and non-textual components
- Modular knowledge is subject to new kinds of manipulation
 - Adding and subtracting modules in real-time
 - Can be located, retrieved, and consulted separately or in combinations

Hyperlinks—New Form of Content?

THEME 5

- Bibliographic attributes of hyperlinks track scientific and intellectual processes
- Hyperlinks represent the coherence of distributed information
- Meta-data maps new structures of knowledge

- Reading, searching efficiencies
- Hyperlinking to modules beyond the article
 - From article to a cited article in the same journal (84%)
 - From article to a cited article in a different journal (74%)
 - From article to scientific database (58%)

Theme 6: New Meanings of Publication

- Proliferation of genres of scientific online knowledge
- Closer proximity between peer-reviewed journal and other genres
- Changing publication cycles (pre-, post-)
- Peer-review more important as knowledge domain boundary-marker

More Kinds of Info Coming Online...just a Hyper-link Away

THEME 6

- Lecture notes
- Textbooks
- Syllabi
- Lab websites
- Lab notebooks
- Sci equipment and materials info
- Scientific databases
- Scientific knowledge communities
- Scholarly talks
- Conference papers
- Conference proceedings
- Grant proposals
- Informal conversation
- Supplementary data

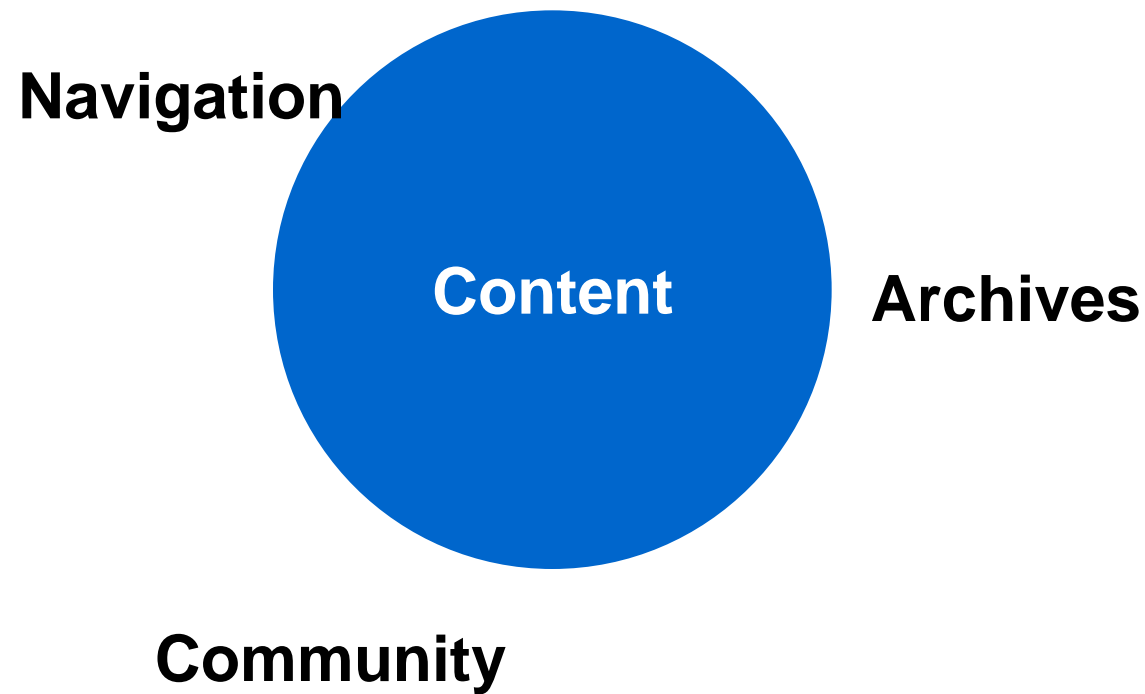
Intellectual Property in Shifting Publication Cycles

THEME 6

- Increase in pre-print publication
- Increase in post-publication review journals

- Online information has different knowledge domain boundary requirements
- 67% of all scholars felt e-journals increase exposure to non-peer reviewed papers (17% strongly, 50% somewhat)
- 55% of “alerts” users had used in-press (pre-print) article access features and found them useful

Theme 7: Core Sources of Value Are Expanding Online



Online Content: More Interactive, Less Formal, More Trackable

THEME 7

<i>Core source of value</i>	<i>Traditional print journal infrastructure</i>	<i>Emerging e-journal infrastructure</i>
Content	<p>Printed content (text, tables, graphics)</p> <p>Publisher's editorial and review process to identify quality content</p> <p>Publisher-provided article descriptors (e.g., journal name, author, institution, lab) to mark quality content</p>	<p>Multimedia content, interactive data and simulations</p> <p>Agent-based filtering, informal and community-based filtering, informal peer review (e.g., LANL)</p> <p>Metadata to describe content type and quality</p> <p>New kinds of content based on an analysis of flow tracking</p>

Online Navigation: More Networked Knowledge

THEME 7

<i>Core Source of Value</i>	<i>Traditional print journal infrastructure</i>	<i>Emerging e-journal infrastructure</i>
Navigation	Librarian, offline indexes, journal structure and format	Search engines, agent-based searches and hypersearches, electronic tables of contents, alerts, hyperlinks, networks of linked knowledge

Online Archives: More Searchable, More Personalized

THEME 7

<i>Core Source of Value</i>	<i>Traditional print journal infrastructure</i>	<i>Emerging e-journal infrastructure</i>
Archives	Publisher archives, offline databases, libraries, reprints, photocopies, personal paper filing systems	Clusters of searchable online journals, online archives of specific journals, bibliography applications (e.g., EndNote), digital object identification, personal electronic filing and retrieval systems

Online Community: More Informal, Higher Response Speed

THEME 7

<i>Core Source of Value</i>	<i>Traditional print journal infrastructure</i>	<i>Emerging e-journal infrastructure</i>
Community	Scientific societies, conferences, journal clubs, subscription services	Online knowledge communities, email communities, listservs, rapid-response letters to the editor, informal peer forums

SESSION 2: Key Questions

- Are e-journals fundamentally transforming scientific scholarship?
- How fast will e-journals diffuse?
- Will some “gray zone” genres become mainstream?
- What are the implications of e-journals for brand?