Digital libraries and users: an Italian experience
Changes in academic users’ attitudes, perceptions and the usage of study and research tools in a hybrid context.

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This is a presentation of a research conducted by Cinzia Conti(1), Ugo Contino(2), Gino Farinelli(2), Paola Gargiulo(2), Luisa Marquardt(2)

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Overview

- Brief introduction of CIBER consortium
- E-Journals usage at CIBER
- Users survey: goals and methodology
- Analysis and evaluation of survey results
- The cluster analysis
- Conclusions
Premises

- In Italy there is no tradition of studies & research on library use statistics and users behaviours in the print nor in the digital environment.
- This is the first study conducted on 25 Italian academic institutions.
- Most of the results of our survey confirm what is reported in the US, UK and international professional literature.
- There are several reasons to investigate use and acceptance of e-journals.
- Is the Italian scientific community ready to work in e-only dominated environment?
CIBER- Coordinamento Interuniversitario Banche dati ed Editoria in Rete

- university library consortium funded by 5 Universities in Central and Southern Italy in 1999
- currently 25 universities from Central and Southern Italy are members of CIBER
- aims: electronic content licensing and loading, preservation, promotion and dissemination of scholarly publishing, training
- CASPUR - SuperComputing Applications Consortium handles the technical/administrative side and runs the digital library platform for CIBER
CIBER - Coordinamento Interuniversitario Banche dati ed Editoria in Rete
CIBER members growth

- 1999: 5
- 2000: 8
- 2001: 13
- 2002: 22
- 2003: 25
CIBER- Licensed e-resources

Emeroteca Virtuale (EV) is the name of the electronic journals library designed to aggregate e-journals from multiple publishers

- launched in September 1999 with 530 subscribed journals of Elsevier Science
- currently over 3566 journals from 5 different publishers
- most of the them are available full text through the EV platform
- backfiles start at different points in time, on average from 1995 or 1996 onward
- not all institutions subscribe to all contracts
CIBER- Emeroteca Virtuale/EV

- access is by title, subject categories, by traditional search form options
- personalized services, CrossRef, links to pre-print servers are activated
- URL links to the EV are activated from library catalogs, from our locally mounted installations of Web of Science and from several secondary databases (CSA; Current Contents; Sci-Finder Scholar; Econlit, Medline; MLA, Pubmed; PsycINFO ecc.)
## CIBER: Licensed Electronic Journals

<table>
<thead>
<tr>
<th>Publisher</th>
<th>ISSN</th>
<th>Date</th>
<th>Loaded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elsevier</td>
<td>1825</td>
<td>1995-</td>
<td>FT</td>
</tr>
<tr>
<td>Blackwell</td>
<td>590</td>
<td>1996/97</td>
<td>Metadata</td>
</tr>
<tr>
<td>Kluwer (ISSN)</td>
<td>760</td>
<td>1996/97-</td>
<td>FT</td>
</tr>
<tr>
<td>ACS</td>
<td>30</td>
<td>1879-</td>
<td>Metadata</td>
</tr>
<tr>
<td>IOPP</td>
<td>41</td>
<td>1875-</td>
<td>FT*</td>
</tr>
<tr>
<td>Wiley**</td>
<td>300</td>
<td>1996-97</td>
<td></td>
</tr>
<tr>
<td>Nature</td>
<td>16</td>
<td>1996/97-</td>
<td></td>
</tr>
</tbody>
</table>

| Total         | 3566  |           |        |

(as of August 22, 2003)

* from 1991
** Trial
E-journals available

<table>
<thead>
<tr>
<th>Year</th>
<th>Full Text</th>
<th>Metadata</th>
</tr>
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<tbody>
<tr>
<td>1999</td>
<td>530</td>
<td>0</td>
</tr>
<tr>
<td>2000</td>
<td>650</td>
<td>0</td>
</tr>
<tr>
<td>2001</td>
<td>1587</td>
<td>330</td>
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<tr>
<td>2002</td>
<td>2419</td>
<td>670</td>
</tr>
<tr>
<td>2003</td>
<td>2520</td>
<td>617</td>
</tr>
</tbody>
</table>
### CIBER - Users Population

<table>
<thead>
<tr>
<th>Category</th>
<th>Number of Universities</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 universities</td>
<td></td>
</tr>
<tr>
<td>23 multidisciplinary universities</td>
<td></td>
</tr>
</tbody>
</table>

**Users - Population**

<table>
<thead>
<tr>
<th>Group</th>
<th>FTE Students: 265,879</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>&gt; 50,000 FTE</td>
</tr>
<tr>
<td>2</td>
<td>&gt; 20,000 FTE</td>
</tr>
<tr>
<td>4</td>
<td>&gt; 10,000 FTE</td>
</tr>
<tr>
<td>7</td>
<td>&gt; 5,000 FTE</td>
</tr>
<tr>
<td>10</td>
<td>&lt; 5,000 FTE</td>
</tr>
</tbody>
</table>

**Users - Population**

<table>
<thead>
<tr>
<th>Group</th>
<th>Faculty: 26,036</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>&gt; 5000</td>
</tr>
<tr>
<td>2</td>
<td>&gt; 2000</td>
</tr>
<tr>
<td>3</td>
<td>&gt; 1300</td>
</tr>
<tr>
<td>14</td>
<td>&lt; 800</td>
</tr>
<tr>
<td>1</td>
<td>&lt; 100</td>
</tr>
</tbody>
</table>
User Population - FTE students

Source: Miur - (Italian) Ministry Of Instruction - University and Research
User Population - Faculty
Professors, Contract Professors, Lecturers

Source: Miur - (Italian) Ministry Of Instruction - University and Research
Daily article downloads by month

- **Jan 02 - Dec 02**
- **Jan 03 - Jun 03**
Total Articles Downloaded by hour (%)

Period: 01/07/02 – 30/06/03
Users survey: goals

Primary Goals:
- obtain direct feedback on the use and acceptance of the EV and e-journals
- profile electronic journals users (by age, sex, discipline, occupation, etc)
- explore the relationship between electronic journals usage and rank (with reference to faculty)
- collect opinions and attitudes towards e-journals
- gather information on users information skills, familiarity with e-resources, behaviours in obtaining and using information

Secondary Goals:
- assessing faculty and students awareness of e-journals library web pages, databases, title listings made available by single institutions
- exploring which aspects of the service needed improvement (e.g. promotion, user education, remote access, backfiles loading etc)
- assessing the need for additional e-journals
Users survey: methodology

- A questionnaire was posted on the web from March 15 to April 10 2003
  - Number of respondents: 1305
  - Number of valid questionnaires: 1150 (90%)

- A print questionnaire was distributed in 9 libraries from March 15 to April 30 2003
  - Number of respondents: 305
Users breakdown by discipline based on the survey

- Biology and Biomedical Sciences: 24.6%
- Chemistry and Pharmacology: 13.7%
- Engineering: 18.4%
- Medicine and Veterinary Sciences: 11.7%
- Physics and Marth: 11.3%
- Agricultural and Earth Sciences: 7.4%
- Economics, Statistics and Social Sciences: 6.7%
- Other: 4.9%
- No answer: 1.3%
EV users according to age
based on the survey results

- Under 30: 26.1
- 31-40: 30.5
- 41-50: 25.4
- Over 50: 18.1
EV users by occupation
based on the survey results

- Librarian: 2.7%
- Student: 6.3%
- Ph.D candidate: 16.0%
- Ph.D student: 9.0%
- Technical / Administrative staff: 2.3%
- Other: 5.4%
- Professor: 13.3%
- Associate Professor: 17.2%
- Researcher: 27.9%
- Ph.D student: 9.0%
Awareness of the EV service

- Promotion through E-mail: 14.4%
- Friends / Colleagues: 22.1%
- Library staff: 34.6%
- University library web site: 23.0%
- Other: 4.0%
- No answer: 1.8%
EV Frequency of use

- Less than once a month: 3.1%
- At least once a month: 19.1%
- At least once a week: 77.8%
How users search or browse the EV

- Search by keywords: 15.5
- Search based on citations: 22.6
- Search by author: 29.5
- Search by journal titles: 32.4
Q. Have you found out any new e-journal, useful for your research / study?

No
13.8%

Yes, several
30.6%

Yes, one/few
55.6%
Articles usage and printing

Q. Do you use the electronic version of a journal even when it is available in the nearest library in a printed form?

- Often: 34.4%
- Sometimes: 11.2%
- Never: 2.3%
- Always: 52.1%
Q. Do you usually print the articles you find very interesting?

- 39% immediately print them
- 5% read them on the screen
- 7% print them as soon as a printer is available
- 1% look for the print version after reading them on the screen
- 48% after reading them on the screen
Q. If you have access to a journal that is available both in electronic and in a hard copy format, you prefer to look at the...

- Equivalent 27.0%
- Print edition 21.3%
- Electronic Edition 51.7%
Users survey analysis

- Relationship: rank and usage
  - Researchers and associate professors represent the higher percentage of respondents (44%: researchers and associate professors, 13% are full professors) and age (30,5 are between 31-40)

- Relationship: sex, rank and discipline
  - (61% of respondents are male, 44% researchers and associate professors, 35% biological sciences and medicine, 25% applied sciences, 24% physical sciences)

- Students low usage due to the Italian higher education system

- Electronic journals are now part of their weekly reading habits (77,8% use e-journals at least one a week)

- Parallel Publishing: e-journal are preferred to print journals (52% of respondents)

- The approach to e-journals is still quite traditional
Users survey analysis: usage patterns

- many respondents tend to search titles, authors and citations they already know
- many respondents tend to use always the same primary and secondary sources, neglect and/or ignore other e-resources made available through their libraries
- new journal titles are discovered through searches
- Usage of secondary databases or other sources (pre-print servers) to access e-journals is not heavily spread
Users survey analysis: usage patterns

- BROWSE: 63% browse the abstract first
- DIRECT TO FT: 37% go directly to the article
- READ: 48% read the article first on the screen
- PRINT: 39% print a copy of the article instead of reading it on the screen
- SAVE: 66% save articles (36% always, 27% often)
Users survey analysis

Reason to choose the electronic format vs print format

- convenience
  - quick consultation (23% respondents)
  - article downloading (18%)
  - storing the article locally (18%)

Disadvantages of using the electronic format vs print format

- Internet connectivity (32%)
- Incomplete volume collection (27%)
  - users would prefer to have backfiles available on line
- Difficulty of reading from a screen (19%)

- graphics quality is not an issue
The Cluster analysis

- Cluster analysis and users’ opinions and behaviours
- The application of a cluster analysis to our survey
- Respondents are grouped in four different categories
  - Each category comprises individuals who share the same characteristics, behaviour and opinions
  - Maximation of cluster differences based on variables extracted from the questionnaire
    - Extraction of 11 active variables (how did you find out; do you use...) and 7 illustrative variables (age, sex, occupation, discipline)
  - Subsequently four categories were identified in an ideal space between tradition and innovation
The Cluster analysis

**Factor 1:** tradition versus innovation with reference to users’ opinions about electronic resources

**Factor 2:** tradition versus innovation with reference to the way people use the EV

- **Cluster 1:** between tradition and innovation
- **Cluster 2:** towards innovation with some resistance
- **Cluster 3:** innovation without hesitation/innovators
- **Cluster 4:** tradition traditionalists/laggards
Innovation without hesitation
- absolutely in favor of electronic journals
- preference for electronic journals
- read articles from the screen
- save articles
- perform keyword searches (98%)
- author searches (83%)
- Field of study: engineering
- 232 respondents (28%)

Towards innovation with some resistance
- more strongly in favor of electronic journals
- use electronic journals rather than print journals when available
- search based on citation, keyword, or author searches are almost never performed, journal titles searches are rarely performed, articles are rather printed than saved
- Field of study: biology and biomedical sciences
- 208 respondents (25%)

Tradition
- less in favor of electronic journals
- preference to use print journals rather than e-journals as the latter are not easily accessible
- preference to maintain print format
- graduate students (36% under 30 years old)
- 185 respondents (22%)
Conclusions

- general acceptance and preference for e-journals especially in the STM fields
- request for additional journals and backfiles
- social sciences and humanities need better coverage
- strong need for promotional/training activities and for more workstations in public areas
- the cluster analysis gave an interesting, articulate, complex picture on users opinions and behaviours; further studies are required
- users interviews, weblog analysis will be carried out in the near future together with studies on reading purposes, reading behaviours, etc.