

AVAILABILITY OF JOURNALS IN ELECTRONIC FORM*

By Oili Kokkonen and Eva Ijäs

Abstract: Great expectations to improve access to information and to save resources have arisen together with the development of electronic journals on the Internet. Both librarians and researchers are looking for new possibilities in the field. Information specialists in different subject areas of a multidisciplinary university library made a survey in their respective subject areas looking for availability of journals relevant for research and education on the Internet. The paper describes the results of the survey and discusses the consequences of the development of electronic journals for acquisition at university libraries and for their users.

1. Background

Already for several years the scholarly and library community have actively discussed the possibilities that electronic publishing - or "publishing on the net", as we limit the concept of electronic publishing in this paper - offers for the learned society and the libraries serving it. The discussion has accelerated along with the expansive growth of Internet resources and the increasing possibilities to use them. Universities which in most parts of the world have undergone reductions in resources have regarded improved access to networked electronic information as a possibility to enhance the resources of scientific information.

The possibility of using this new alternative information resource has been presented to libraries by university administrators, and in some cases also by researchers themselves. In this situation libraries which have had to cancel subscriptions of scientific journals and which simultaneously suffer from lack of storage space and staff are following the change in the field of electronic publishing on the network with growing interest.

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Scholars have experienced the new form of publishing both as a threat and as a new chance for scientific communication. While, on the one hand, they present enthusiastic and encouraging viewpoints about electronic publications on the Internet, on the other hand, they are most hesitant about the change that is going on in the field.

The following outlines some considerations regarding the issue from the viewpoint of both scientists, libraries and information services, and their users. Many of them are obviously most contradictory to each other:

The Internet is not a forum for serious publishing, and the scientific credits researchers gain by these publications are not equal to scientific publications proper.

The Internet covers an increasing amount of refereed journals, and the status of these journals will gradually be established by implementing a peer review practice for them (1).

From the copyright and price policies point of view the usage of electronic publications still involves a great amount of unsolved problems for all parties concerned - authors, publishers, agents, libraries and end users.

The amount of information the Internet generates at present makes it impossible to select relevant and reliable information from the chaos on the net.

Indexing facilities and search engines on the Internet are constantly improving and will offer tools for better access and selection of information.

There are estimations of up to 70% savings in electronic publishing (2). Add to this the self-service use of these publications and the savings in storage and services of printed materials in libraries, and the benefits of the usage of electronic journals could be obvious.

Besides technical problems there are still plenty of behavioural and cognitive constraints in the usage of electronic information. These problems are a challenge to user education in libraries. However, before developing the information skills of their users, librarians and information specialists themselves need to be trained in these issues.

A high technical level of university networks and workstations along with free and sufficient access to them are the prerequisites for the use of electronic publications. Therefore it may happen that the savings in

publishing and in libraries storing and disseminating traditional information sources do not compensate for the costs caused by the new technology.

Reliable cost-benefit analysis of the production and use of electronic journals is extremely complicated. The amount, availability and conditions of ejournals are constantly changing. The production process from a researcher to publishing to end users is still unstable and covers continuously altering factors, which vary according to circumstances and subject areas.

At present the problem is that we are lacking concrete information about the pros and cons concerning the quality, availability, and use of electronic publications at universities. As a matter of fact, universities are expected to make rapid strategic decisions concerning the role of libraries in organizing services of networked electronic publications. It is, however, no wonder that for example the IFLA Section of University and other General Research Libraries which repeatedly has touched upon the issue has never really been able, at least so far, to generate information so important for university libraries all over the world.

2. The Jyväskylä University Library Survey on Internet Journals

Jyväskylä University Library serves a university community of 10,000 students and 1,400 staff members. The five faculties of the University cover Humanities, Social Sciences, Education, Sport Sciences and Science (Mathematics including Information Science, Physics, Chemistry, and Biology including Environmental Sciences). The university network is well equipped, and the University Library offers workstations and Internet training for the users. Much attention has been paid to the development of the Library's WEB-site (<http://www.jyu.fi/~library/>) to support users in exploiting Internet information resources in studies, teaching and research. The majority of the library staff represents a relatively high level of competence in information technology. This means that technological and human resources for active use of the Internet are fairly sufficient.

The Library has undergone a 5-10 % annual decline in resources during the last four years. The number of subscriptions of foreign journals has decreased from 2,500 titles in 1992 to 2,000 titles in 1996. From this angle the external pressure to exploit modern information technology and Internet resources is high.

Because of some comments on "freely available scientific journals on the Internet" by some Library Committee members it was decided that the information specialists of the Library would survey the availability of ejournals on the Internet

in their respective subject areas in May 1996. The disciplines covered were: Education, Psychology, Biology, Cultural Studies, and Sport Sciences (including social, medical and biological branches). It was decided that main attention would be paid to journals the Library subscribes to in print form to find savings in the periodicals budget, but the information specialists also reviewed the general situation in their field. Findings are in this paper reported in the following subject areas: Psychology, Sport Sciences, and Hydrobiology.

Harte and Kim (3) classify electronic publications as follows

- ejournal replaces print journal
- ejournal coexists with print journal
- journal is in electronic form only, but individual articles can be ordered in paper form
- ejournal is "secondary" to print journal
- electronic version is published several months after the print version
- print version is published several month after the electronic version
- full print version is not available in electronic form
- both versions exist but with different pricing arrangements.

Partly based on these ideas, we looked at the availability of the journals in the subject areas concerned and classified them into the following groups:

1. There is only journal information on the net (publisher, ordering address, possibly author instructions, and prices).
2. In addition to the above, the WWW-document contains tables of contents and/or abstracts, and for some journals also selected target articles.
3. The full text version of the journal/article can be read in electronic form by special agreement through an agent.
4. The full text version of the journal/article can be read in electronic form directly from the terminal without charge (format may be html, Adobe Acrobat etc.)
5. Electronic journals proper which do not appear in print form.

The survey is based on information found in WWW-documents. Availability of the journals was examined according to disseminating organizations (agents, publishers etc.), and information on the conditions of access was recorded. Attention was also paid to the prices of the journals in different forms.

3. Major Results of the Survey

The table below shows how many of the Sport Sciences, Psychology and Hydrobiology journals subscribed to at JUL can be found on the Internet, and what kind of information is available on them. In addition, there are some electronic journals proper for which no print version is available.

Table 1. Availability on the Internet of Journals subscribed to at Jyväskylä University Library

		Information in electronic form				
		Full text not available		Full text available		5. Electronic journals proper (no print version)
Subject area	Number of journals subscribed by JUL	1. Journal information	2. Contents, abstracts, target articles	3. Agent	4. Publisher	
Hydrobiology	44	13	19	5	1	2
Sport Sciences	124	2	31	-	2	3
Psychology	140	34	37	15	1	3
Total	308	49	87	20	4	8
Total 2 - 5		119				

Some publications which only had journal information on the net (Group 1) also had an electronic order form and information on bibliographies in which the journal is indexed, and on where article copies can be ordered from.

In addition to tables of contents and abstracts, many journals publish some of their articles in electronic form. These journals include the *Journal of Experimental Analysis and Behaviour* (JEAB), and the *Journal of Applied Behavior Analysis* (JABA), which receive grants from the *Society for the Experimental Analysis of Behavior* for the purpose. *Behavioral and Brain Sciences* also publishes only target articles in electronic form. These journals fall under Group 2 in the classification.

Different fields of science have their own publishers with various ways of making their journals available to their customers. *American Psychological Association* (APA) WWW-pages include a total of 28 journals whose tables of contents are available on the net. JUL subscribes to 13 APA journals (Group 2).

Human Kinetics is the most important publisher in Sport Sciences. Its web pages present 22 journals with tables of contents which can be browsed in electronic form free of charge. JUL subscribes to 13 of these journals, and they are included in the 31 JUL Sport Sciences journals whose tables of contents are electronically browsable. (Group 2).

American Fisheries Society is a major publisher of Hydrobiology journals. It also makes the tables of contents and abstracts available in electronic form. Five of the Hydrobiology journals subscribed to JUL are published by it. (Group 2).

Alongside print versions of journals, many big publishers and some agents offer journals also in electronic form, often on an experimental basis. The general principle seems to be that by separate agreement the subscriber to a print journal can also acquire authorization to use electronic journals. If, for example, the subscriber is a library it can extend the authorization to include its users. Information on licence prices is usually not readily available on the net because the prices vary according to the use of the journals. JUL has so far not acquired any licences in the subject areas under study.

Academic Press has put all its 175 journals in electronic form. Nine of the psychological journals and two of the hydrobiological ones subscribed to JUL are published by *Academic Press*. Anyone can browse the tables of contents and abstracts. Articles, however, can only be accessed by authorized users at sites within the licensed consortia. Journals subscribed to at JUL are classified under Group 3.

The tables of contents of 1,000 journals published by *Elsevier* (ESTOC) have since 1995 been available for free browsing. Although abstracts are searchable they do not appear on screen. Of the journals subscribed to at JUL, five Sport Sciences, three Psychology and two Hydrobiology journals belong to this group. *Elsevier* has several experimental projects in progress which aim at electronic publishing of all its journals. No Sport Sciences journals were available in full text through any major agent.

Psychology Online will include new papers from all seventeen *Psychology Press* journals in one database available via the Internet. JUL subscribes to four of these journals (Group 3). Libraries can obtain a Site License form, free of charge, for the journals they have subscribed to for 1996. Tables of contents of non-subscribed journals may be read for a fee.

Only four of the journals of the fields concerned and subscribed to at JUL were available in full text on the net (Group 4). They are *Contemporary Psychology*, a journal of psychological summaries, and the *Canadian Journal of Fisheries and*

Aquatic Sciences in the field of Hydrobiology. The latter is one of the major journals in the field and is available on an experimental basis free of charge until the end of 1996. The *Journal of Muscle Research and Cell Mobility* and the *Journal of Sport Science* are Sport Sciences journals JUL subscribes to which are available in electronic form, but for a fee.

In the field of Psychology, there are a number of journals which appear in electronic form only (Group 5). *Psychology* is sponsored by the *American Psychological Association* (APA) and published by professor Steven Harnad of the University of Southampton. The journal has a scientific referee system. *Behavior Analysis and Therapy* is a peer reviewed journal published by the *Society for Behavioral Analysis and Therapy*. The *Self Help Psychology Magazine* contains also non-scientific articles. *Fokus på familien* is published by NordEP and appears in the Nordic countries.

In the field of Sport Sciences, there are three electronic journals proper which can be read free of charge. These are the *Electronic Bulletin of the Dante Society of America*, the *Swimming Science Journal*, and the *Coaching Science Abstracts* provided as a community service by the Department of Exercise and Nutrition Sciences at San Diego State University.

No free electronic journals were found in the field of Hydrobiology. The *Experimental Biology Online* is concerned with plant, animal and cell biology, and living organisms in aquatic environments. The publication is sponsored by three international biology societies. The *World Wide Web Journal of Biology* includes only an introductory edition from 1995, which can be read only with correct Netscape settings and auxiliary programs.

In addition to the journals mentioned above, the survey in the field of Psychology also covered some journals to which JUL does not subscribe but which are available both on paper and in electronic form. These journals include *PSYCHE*, an official journal of the *Association for the Scientific Study of Consciousness* and an interdisciplinary journal of consciousness, *Dynamic Psychology*, and the *Canadian Journal of Behavioral Science: On-line*. All the above journals can be read free of charge on the net, most of them contain all issues for 1995 and 1996.

4. Summary of Results and Conclusions

Freely available net journals add extra value to the Library's collections but they do not replace subscribed journals. Among those JUL subscribes to in the three fields under study, there were only two journals freely available on the net. One was in experimental use and one was a summary journal. Journals available

through agents or otherwise for a fee numbered 22, which, however, is only 7% of all journals subscribed to the Library in these fields. In terms of savings, the advantage is not very substantial. As mentioned above, the electronic version of the journal is free only for subscribers of the print version, for others it is subject to a fee. Price estimation of licences is extremely problematic also otherwise: prices are not available or they are difficult to find. Besides comparing the prices, we must also consider the importance of the journal for the library in question, as well as available space, equipment, and general mental readiness to utilize information in electronic form.

If, however, for economic reasons, we think that it is enough for researchers to be able to browse a journal's tables of contents and abstracts, and maybe target articles, then the net already replaces 38% of the journals subscribed to the Library in the fields under study. In such a case, however, the library or customers would have to order and pay for the actual article, for example, through Uncover or OCLC.

This survey covered only a limited number of subject areas. It is obvious that the situation in different fields may vary a great deal. If the survey had included, for example, physics or some of its special fields, the number of electronic journals would have been considerably higher.

We also found the information on electronic journals is not easy to find. WWW-pages where information was sought varied a great deal in structure, and often the information found was not comparable. With electronic journals the situation also changes constantly. There are numerous pilot projects in progress in the field. In a year's time, the availability of journals on data networks is probably completely different from what it was in May 1996. In order that net versions of journals can be utilized as soon and as expediently as possible it is important that libraries follow this development. Cooperation in libraries between subject specialists, those developing the journal collections of libraries, and end users is then very important. It is also most desirable that the information available should be standardized to make it easier to follow the development.

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Oili Kokkonen and Eva Ijäs
Jyväskylä University Library
P.O. Box 35
Jyväskylä 40351
Finland