WHEN IS ONLINE NOT ENOUGH?
A comparison of the print and online versions of 14 veterinary journals from 13 different vendors/publishers
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Abstract: As more and more journals are made available in online format, the question arises “When is online enough?” During these times of stagnant journal budgets, rising inflation, and a growing preference of library users for 24/7 desktop access, libraries are facing “either/or” decisions on whether to purchase online or print versions of journals. Electronic journals are appealing due to the absence of costs for check-in, claiming, binding, shelving, and storage required for print versions. However, concerns about archive instability, cover-to-cover content coverage, missing issues, retracted articles, changing publishers, and access limitations surround electronic journals.

This study is a comparison of selected online and print issues of 12 veterinary journals available via 12 different vendors/publishers. Content providers examined in this evaluation include Science Direct, Synergy, BioOne, ProQuest, Ingenta, and others. The major focus of this study centers on the differences in content, if any, between print and electronic formats. How do these different providers define full text? Are all articles, including supplementary material, included in both versions? Other features such as editorials, letters to the editors, editorial board listings, errata, advertisements, case reports, news items, society business, meeting abstracts, proceedings, and special issues, will be compared for inclusion and completeness in both formats. Access stability, quality of illustrations and plates, availability of color, currency, and archival access are other factors that must also be considered. Better information on content in the online and print versions will enable libraries to make better decisions on when online is, or is not, enough.

Introduction

As more and more journals become available electronically and library budgets fail to keep pace with inflation, librarians are asking, “When is online enough?” and “Do we still need to continue to receive and archive print journals?” This study will attempt to answer those questions by comparing the online and print versions of 14 veterinary journals from 13 different vendors/publishers.

Background

During the past five to six years Washington State University (WSU) Libraries have been actively increasing access to online journals. WSU is a land-grant institution, with three urban campuses, a dozen learning centers, research stations, a dynamic distance education program, and an active international program. Currently 24/7 online access to journals from more than 40 content providers is available to faculty, staff, and students in both off and on campus programs. This access is available from offices, labs, and homes. Online journal use statistics verify the heavy use and acceptance of e-journals. During the first 11 months of the 2002/2003 fiscal year, articles in Veterinary Microbiology were accessed online 942 times, compared to 97 print uses. The numbers for Theriogenology are comparable, with 944 online uses compared to 65 print uses. So when faced with recent budget cuts, the Libraries have chosen to cancel print copies when possible while maintaining electronic access. This provides library users with access to the many journals they need. To date we have canceled the print copies of
many medical and biomedical journals. Archival access is less critical for these journals and interlibrary loan can be used when the electronic content may not be adequate. This year we are facing more difficult decisions, namely, whether to cancel the print versions of basic core veterinary journals. These heavily used key journals are the core of an academic veterinary library.

Methodology

We began our study with a survey of vendors that publish at least one online veterinary or veterinary-related journal. This rubric was developed after a search of the literature revealed a wide range of criteria used by other investigators\textsuperscript{13-20}, but no common standard. Thirteen different content providers were identified. These included aggregators, large publishing houses, society and non-profit publishers. One journal was selected from each source, and for each title, the latest issue for which we had both online and print copies available was chosen (see Table 1).

<table>
<thead>
<tr>
<th>Title</th>
<th>Provider</th>
<th>Issue Analyzed</th>
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<tbody>
<tr>
<td>Animal Health Research Reviews</td>
<td>Ingenta</td>
<td>Jun. 2002 3(1)</td>
</tr>
<tr>
<td>Journal of Animal Science</td>
<td>HighWire</td>
<td>Jan. 2003 81(1)</td>
</tr>
<tr>
<td>Journal of Comparative Neurology</td>
<td>Wiley</td>
<td>May 5, 2003 459(3)</td>
</tr>
<tr>
<td>Journal of Dairy Research</td>
<td>Cambridge University</td>
<td>Feb. 2003 70(1)</td>
</tr>
<tr>
<td>Journal of the American Animal Hospital Association</td>
<td>KnowledgeNow</td>
<td>Jan-Feb 2003 39(1)</td>
</tr>
<tr>
<td>Journal of the American Veterinary Medical Association</td>
<td>American Veterinary Medical Association</td>
<td>Apr. 15, 2003 222(8)</td>
</tr>
<tr>
<td>Journal of Veterinary Emergency and Critical Care</td>
<td>Synergy</td>
<td>Mar. 2003 13(1)</td>
</tr>
<tr>
<td>Laboratory Animals</td>
<td>Ingenta/ECO</td>
<td>Jan. 2003 37(1)</td>
</tr>
<tr>
<td>Onderstepoort Journal of Veterinary Research</td>
<td>ProQuest</td>
<td>Dec. 2002 69(4)</td>
</tr>
<tr>
<td>Parasitology Research</td>
<td>Springer</td>
<td>Mar. 2003 89(5)</td>
</tr>
<tr>
<td>Veterinary Immunology and Immunopathology</td>
<td>Science Direct</td>
<td>Mar. 20, 2003 92(1-2)</td>
</tr>
<tr>
<td>Veterinary Surgery</td>
<td>Saunders</td>
<td>Jan.-Feb. 2003 32(1)</td>
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To assist us in the evaluation, we designed a rubric for comparing features of the print and e-versions. We not only looked at content, but other attributes important to the reader. These included graphics (readability, clarity, etc.), format(s), accessibility, quality of reproduction of photocopies and prints, stability (archiving and permanence), and licensing and copyright issues. Our rubric worksheet is divided into six parts: Basic Information, Currency; Coverage/Completeness/Accuracy; Graphics; Stability; and Accessibility.
Division of Work

Work was divided among the three investigators. For continuity in evaluation, each person focused on specific sections of the rubric, not specific journals. If the issue lacked a feature, such as letters to the editor, we would usually not examine another issue to find that attribute, due to limited time and scope. In some cases, we did intentionally look for irregular special features, such as supplements or errata. Mozilla 1.3 and Internet Explorer 6.0 browsers were used for online comparisons. Bobby software\textsuperscript{21} was used for accessibility testing.

Results

Coverage/Completeness/Accuracy

PDF was available for all of the journals, so a standard printout was equal to a photocopy of the print version. Html was available for most of the journals as the standard first option, with a printable view link somewhere on the article text page. In some cases, notably Journal of the American Veterinary Medical Association [JAVMA], the cover illustration is not found in the online version. For the Journal of Comparative Neurology, the cover was online, but the description was missing.

Content

Page by Page

Basically the research and feature articles were complete in both print and electronic versions. Sometimes only PDF was available for articles or issues. This is unfortunate because abstracts or other items within the article are not searchable in the PDF format. For example, individual abstracts of society meetings that often appear in the online supplements of Journal of Animal Science and Journal of Dairy Science are not searchable. Occasionally articles or even whole issues may be lacking in the electronic journal, but none of these omissions were noted in the issues we evaluated.

Society business, news, and membership information were often lacking in the electronic version. While some of this information may be found in other places, such as an affiliated web site, others are either missing or access is restricted to the reader with a personal subscription.

Advertisements, Password, Protection, Errata, and Editorials

Advertisements, including classified ads, position announcements, and display ads, were almost never present in the electronic versions. Occasionally an ad was accidentally scanned as a PDF of a page in which it shared with part of an article or even by mistake, but those cases were rare. When classified ads and job openings were included, occasionally other restrictions were placed on their use. For example, the Journal of the American Veterinary Medical Association (JAVMA) allows access to only AVMA members to certain parts of the its content by password-protection. These restricted sections include job ads, positions available, continuing education
opportunities, and obituaries. Even some of the news items from AVMA News Online, the online version of JAVMA news section, are restricted to only members. Yet, the same information is freely and readily available to any print reader.

In other journals, such as Veterinary Surgery, errata are included, but we know of other cases in which they are missing in the electronic format. While errata and news items are certainly important, non-librarian readers may not notice these gaps in content. Other omissions seem much more difficult to explain. For example, an editorial was missing from the online issue of Animal Health Research Reviews.

Supplements

Supplements were problematic for several reasons. Supplementary content may be lacking in either the print and/or online form, depending upon the journal. Looking at the Journal of Animal Sciences Supplement's page, you will see that JAS has supplements that are E-only supplements in addition to its print supplements. The JAS web page also includes useful supplementary material that is found in neither the print or electronic journal format.

On the other hand, it is not uncommon for supplements to be missing entirely from the online version of a journal. In a recent email response to an inquiry about a missing electronic supplement, a customer representative of a large commercial publisher wrote: "Our inclusion of supplements is spotty at best. In the meantime, please contact this company, which specializes in article reprinting." He goes on to recommend obtaining the missing articles from a commercial document delivery service. It was interesting that 2 years earlier the response from same representative concerning a similar problem included apologies and an indication that the company was making an active effort to remedy these gaps.

A second set of problems is consistency in supplements. This group of problems includes not only the correct format and how to do it, but to discrepancies between the print and electronic versions. For example, the Laboratory Animals supplement "Laboratory birds: refinements in husbandry and procedures" has been cited 3 ways. In the print, it is Laboratory Animals v. 35, Suppl. 1, October 2001. In Ingenta it is Laboratory Animals v. 35 number 4, Supplement, October 2001, while in ECO the supplement is divided into 2 parts: Laboratory Animals v. 35, no. 3, Supplement 1, 2001 (General Sections) and Laboratory Animals, v.35, no. 4, Supplement 1, 2001 (Species Sections). (Figure 1) How should this supplement be cited? Can we be certain that the print is the “right” way? Even PubMed and Web of Science do not cite this supplement in exactly the same way, but both do follow most closely the print version.

Content that remains the same with each issue

Electronic versions typically featured more complete contact information for publishers, and often included more up-to-date information on Editorial Boards. Electronic versions also typically had more complete Guidelines for Authors. In many cases the web address for this information was listed in the print version as the most authoritative source.
Graphics

In general, when graphics were published in the print version, they were also available online. All graphics on web pages were easily viewable, being GIF or JPG files, and not a specialized file type. All graphics on PDF full-text files were embedded in the file, as they would have appeared in the print issue.

The location of graphics in html format varied from provider to provider. *Journal of Zoo and Wildlife Medicine* through BioOne had links to figures and photographs at the bottom of the full-text article. Some other providers had links in text where the figure, picture, etc. was mentioned. Others, such as Springer's *Parasitology Research*, had their links on toolbars next to the full-text. The variation may cause confusion and cause the reader to have difficulty accessing the graphics that accompany the article.

There is great variation in whether color is included in the online format and the readability of plates and gels. Color online was included for the most part but not guaranteed in all journals or providers tested. ProQuest eliminates color from their graphics, causing photographs that in print are in color to be gray scaled or black and white online. This can be critical for some articles in journals such as *Onderstepoort Journal of Veterinary Research*.

*Journal of Comparative Neurology* via Wiley had commendable color graphics that were identical to, if not of greater quality than their print counterparts. Plates and gels may either be less readable electronically or on the other hand, able to be enlarged and enhanced online. Resolution and quality depends upon the computer and printer. Huge graphic files take lots of memory, and are often not easily accessed with Internet modem access.

Stability

Stability was difficult to assess. By anecdotal experience, we know that some service providers may add or delete journals without warning. *Veterinary Economics* and *Veterinary Medicine* were originally to be part of this study, but suddenly all the full text articles and issues were withdrawn, even the backfile content. The reason given was that the publisher withdrew permission for UMI to make the content available electronically. Licenses may vary on archival access, dependent on the restrictions in the contract signed by the individual library. When a print journal is cancelled, the back issues remain, but that might not be the case with ejournal subscriptions. Use of ECO, Electronic Collection Online from OCLC, is one way to maintain archival access to journal content already purchased.
**Accessibility**

For the purposes of our evaluation, "Accessibility" is taken to mean how accessible select parts of the provider's web site are to persons with disabilities. Bobby was used in this study to test accessibility. The pages tested for this article were the journal homepage, the table of contents of the issue evaluated, and a random full-text article within the issue evaluated. Of the web pages tested for this article, none passed Bobby's level I criteria, which indicates a basic level of accessibility.

**Discussion**

Comparing the print and electronic versions was not always easy. In the electronic version, it was difficult to determine for sure if a given piece of information is not present. The need for standards in content and organization of electronic journals is obvious. Missing content such as supplementary materials and errata are concerns. The consequences of including such items as uncorrected proofs (in the case of Veterinary Immunology and Immunopathology available via Science Direct) are still unclear. Bibliographic standards would be useful for citing and numbering, as in the case of the *Laboratory Animals'* supplement. If differences in access for personal and institutional subscribers are present, they need to be explicitly stated in an easy to locate place.

The International Coalition of Library Consortia (ICOLC) has produced some excellent guidelines for publishers.²² Their recommendations discourage the removal of access to journals or parts of journals partway through a license period, waiting several months before releasing the online version of a new issue, or not publishing the entire issue electronically. They do encourage publishers to take advantage of online journals to include *more* information in the electronic version that would not have been practical (because of length, format, etc) to include in the print version. As for long-term access and archiving, permanent access to electronic archives is recommended and it is suggested that "paper does not make a suitable substitute for online copies as far as archiving is concerned."

Within a few years providers will have to be able to give more attention on accessibility to the disabled, yet all journals in this study failed the Bobby test. By making publishers more aware of accessibility issues, we can help further access to our users who need extra assistance in accessing the information that they need.

**Conclusions**

In conclusion, online and print versions of journals are not the same: not in format, content, organization, usability, or convenience. Features such as convenient anywhere, anytime accessibility and hotlinks to cited articles and other databases add to their popularity. Yet uncertainties such as lack of permanence of electronic journals loom as large issues of concern for librarians and researchers who are concerned about archivability and the permanence of scientific research.

Our study found that each online journal, even from the same resource provider, is unique and must be examined individually. Missing and restricted content, such as
classified ads, job openings, association information, membership information, errata, can be crucial to readers. Quality of graphics and color is important to researchers and clinicians alike. Supplementary materials can not be ignored. Stability, archiving, and permanence need to be concerns for all of us. Standardization, such as adherence of publishers to the ICOCL recommendations, can benefit everyone from the publisher to the content providers to the librarians to library users.

And while online does provide enormous capabilities, sometimes online alone is simply not enough. Better information on content and features in the online and print versions and the use of rubrics for evaluating content and features will help assist librarians make better decisions on when online is, or is not, enough.

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