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Addressing Reference "Perishability": The Availability of Web-based Resources Cited in Academic Journals

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Abstract

A tremendous volume of information is now available on the World Wide Web (web). Researchers have begun to tap this resource, and reference web sites in their publications. However, web-based sources may not be available in the given location when readers attempt to access the referenced material. This article considers the longevity and malleability of web-based information sources, reasons for the loss of referenced sources, and how using this knowledge resource may affect the academic tradition of building cumulative knowledge.

Introduction

The ability to independently replicate research and validate references is a cornerstone of scientific research (Campbell and Stanley 1963). Missing or altered references could impact the credibility and subsequent contribution of a research article. This paper examines how changing web sources could effect the perceived value of a work referencing those sources. The transient nature of electronic references is defined in this article as "perishability". Perishability is a characteristic of an electronic source that (1) exists only as long as access to its on-line location is maintained or (2) the content is subject to digital alteration subsequent to its citation by others.

Media Permanence

The foundation of scientific research in the natural sciences, humanities and social sciences is to build upon the findings of prior studies, so that new research is adding to the existing knowledge-base in a cumulative fashion. In an address to the International Conference on Information Systems (ICIS) in 1980, Peter Keen asserted that it is imperative for the Information Systems (IS) field to build a cumulative tradition for research (Keen 1980).

To this end, generations of academicians have consigned to printed-paper journals those articles deemed a contribution to their field. These journals are part of a repository for scholars to reference and build upon. The nature of this data repository seems to be evolving as new technologies are being employed in the knowledge

creation and dissemination process. The Internet and the World Wide Web (web) have made countless, and growing, volumes of information available within one's own personal work area. Search engines and web crawlers can help individuals find, with relative ease, information on a given topic from virtually anywhere on the globe.

As an electronic-hypertext medium, the web raises some unique issues for the current generation of researchers. These issues include the possibility that cited web-based information may not be available at the designated location. Reasons for the missing information include changes in web-server addresses, as well as changes in data location. Furthermore web-based information, being in electronic form, is subject to deletion or alteration. Unlike references in traditional paper-based sources, the information at the terminus of the hyperlink may change after it has been "published" or posted on the web. The web page referenced may not be in the cited location, contain the data, or be in the form viewed by the researcher(s) citing it when others choose to access it.

While information located on the printed page is constant as long as the physical materials remain intact, information presented electronically can be changed with a few keystrokes or the click of a mouse. Unlike hardcopy revisions, electronic changes are relatively seamless and difficult to detect.

Researchers who publish papers in refereed hardcopy journals, expect that their work will probably outlive them. References stored in a library can be found in their original form many years or decades later. Web-based references do not have this aura of permanence. Web site space leased on a third party server will be removed when the server contract is terminated. The address where the information is kept, its uniform resource locator (URL), will expire if the owner of the domain name does not renew the contract.

There may be no explicit or implied guarantee to maintain the information published in web-based electronic-journals (e-journals), in perpetuity. The resources to maintain e-journals may be transient, and the web-sites existence subject to the interest of the individual or group acting as editor or webmaster. If the underlying

issues being investigated in articles lose their luster, this work could disappear. The loss of source documents may have a serious impact on the cumulative tradition of knowledge in that area of inquiry.

Web Source Efficacy

The timeliness of information used in research is comparable in importance to its validity and accuracy (Campbell and Stanley 1963; Judd, Smith et al. 1991). Thus, there is an incentive for researchers to search for information in a medium which has the potential to provide up-to-date information. There is also pressure on researchers to deliver the finding of their research efforts in a timely manner. Quick delivery of research findings not only allows others to build upon the most current understanding of a phenomenon, but also allows the researcher to establish their own contribution to the knowledge-base before similar work is published elsewhere.

The web provides quick access to information, as well as ease of publication and dissemination. This efficiency allows for a relatively rapid turnaround from idea inception to the public dissemination of findings. Electronic journals are not the only web-based resource for the distribution of information. Posting information on one's personal web site is an even faster way to make information available.

The standards and processes for posting a document on a personal web-site and publishing in an electronic-journal are different. When information is posted to a researcher's personal web site, it is not subject to peer review, however it is still available to reference. Information on personal web sites may be similar to personal conversations with researchers, or working papers. Furthermore, for academics, web locations are typically on a specific university's server. Therefore, the web address of an academic would be tied to his or her university affiliation. Thus, a change in employment would likely necessitate relocating all personal information posted on the web, as well as all web pages maintained for the benefit of a research interest group or the academic community at large. Researchers should attribute ideas gleaned from personal web-pages to their originators, but the information is transient, and has not been vetted through customary channels.

E-journals are subject to varying degrees of peer review, although some web-based journals may impose rigorous standards for publications, some may not. Because the marginal cost of adding a web-based article to a location is relatively small, there are a growing number of non-peer reviewed journals and sources on the web. These resources, while useful for generating ideas, are not always clearly marked as non-peer reviewed.

Other e-journals may subject submissions to rigorous review before accepting articles for publication.

Regardless of the editorial policies for accepting submissions, once a paper has been accepted, it can be published at the editor's discretion, without having to endure the delays traditionally encountered with hardcopy printing and distribution. In other words, web-based journals reduce the lag between article acceptance and publication by avoiding the need for typesetting and layout, while avoiding the costs of printing and distribution that affect paper-based journals.

Many fields have begun to embrace the idea of publishing on the web. A recent survey of on-line journals found 343 peer-reviewed scientific, technical, or medical journal links, and 76 peer-reviewed humanities journal links (WILMA, 1999). There were also 101 non-reviewed scientific journals and 35 non-reviewed humanities journal links (WILMA, 1999). The mere existence of an online journal is not proof that it is a viable outlet for scholarly findings, but it does become a potential source of citations.

Implications

The relative ease of posting material to the web, and the lack of standards by which to establish source credibility, pose threats to the established methodologies employed in research for decades. The perishability of on-line references may threaten the credibility of articles citing them within the bibliography.

If perishability is a legitimate concern, do individuals posting papers on their personal web pages have a responsibility to catalog and maintain these postings? Do the employing organizations, such as universities, have a responsibility to catalog and maintain web pages posted by employees for personal use? Maintaining these postings imposes a perpetual maintain expense to pay for on-going computer support.

E-journals also pose similar questions. These questions include:

1. Should electronic-journal access be considered permanent?
2. Who assumes the 'perpetual' cost for maintaining the web site?
3. Who guarantees that the information will be accessible in the future?
4. What assurances are provided to ensure charges will not be instituted *post hoc* for access to the

information which were not a part of the original conditions of posting?

Future Research

To determine the extent to which reference perishability is a problem, future research needs to examine published articles with web citations to see what percentage of citations have perished. A longitudinal study to note the "rate of decay" of web-based citations would also provide a useful benchmark for researchers reading article with web-based citations. Finally, we need to examine the rate of reference decay for e-journals, volunteer or association maintained web sites, and personal web sites listed in references.

Conclusion

While the World Wide Web presents a new channel for the dissemination of research findings, it also poses a conundrum: to provide easy access to a perishable source, or to continue to force researchers to wade through mountains of paper and manage physical resources. If we build our knowledge-base upon a perishable foundation, our cumulative tradition of research may crumble.

Standards for referencing web-based sources are still evolving. Numerous articles and publication guidelines, usually found on the web itself, attest to the desire to use and identifying information located on this vast medium (Patrias 1993; Page 1996; Walker 1998). However, standards are lacking to ensure the preservation of information in its original location. Long term online access to stable information requires the academic community to address perishability issues while the medium and its use are still in their infancy.

References

Campbell, D. T. and J. C. Stanley (1963). Experimental and quasi-experimental designs for research. Chicago, IL, Rand McNally & Co.

Judd, C. M., E. R. Smith, et al. (1991). Research Methods in Social Relations. Fort Worth, Harcourt Brace Jovanovich, Inc.

Keen, P. G. W. (1980). MIS Research: Reference Discipline and a Cumulative tradition. First International Conference on Information Systems.

Page, M. E. (1996). A Brief Citation Guide for Internet Sources in History and the Humanities (Version 2.1). H-Net, Humanities & Social Sciences OnLine. February 26, 1999. <<http://www.h-net.msu.edu/about/citation/>>.

Patrias, K. (1993). National Library of Medicine Recommended Formats for Bibliographic Citation. Directory of Electronic Journals, Newsletters, and Academic Discussion Lists. 3rd. ed.

<<http://library.jmu.edu/library/guides/citation/cite.htm>>.

Walker, J. R. (1998). The Columbia Guide to Online Style. New York, Columbia University Press.

WILMA (1999). Academic and Reviewed Journals. Electronic Journals. February 26, 1999. <<http://www.edoc.com/ejournal/academic.html>>.