SCHOLARLY
Electronic Publishing

in the humanities and social sciences in Canada

A Study of the Transformation of Knowledge Communication

A joint project of the Universities of Calgary, Alberta and New Brunswick for the Humanities and Social Sciences Federation of Canada

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Electronic Publishing in the Humanities and Social Sciences:

A Report to the Humanities and Social Sciences Federation of Canada on Survey findings

Case Studies Working Group

Introduction

The intention of this section of the project is to provide a detailed assessment of one of the most important aspects of electronic publishing--the electronic journal. While the other elements of this study attempt to be broad and all encompassing, this section takes the opposite approach. In developing the parameters of this study, the consensus quickly developed that one of the most important elements of electronic publishing is the "E-journal". While it is clear that this is not the only aspect of the use of the new technologies, it has quickly been embraced as one of the most significant. As such, it was important for the project to interview those who have developed E-journals about their experiences. What are the problems, challenges and pay-offs offered by E-journals?

To answer these questions it was decided that an examination based on interviews with editors of functioning E-journals would provide an important dimension to the report. Within the practical limits of the study it was impossible to question all the editors of Canadian E-journals in the humanities and social sciences. Therefore it was decided that a study based on a detailed interview with a small number of E-journals could provide an important set of understandings. Thus this section of the report cannot be thought as being "representative" of the field. Nor can this section of the findings of the study be thought of as being the final word on E-journals. Rather this should be thought of only as an important first step in understanding a very important development in the dissemination of scholarly thought.

One of the most striking elements of this study is the enthusiasm that was expressed by all of the editors approached. While their experiences differ, all believe that E-journals not only offer a new means of delivery but also have the *potential* to change the nature of scholarly discourse. Of course, one has to temper the comments of the editors precisely because they are E-journal editors. As a group they are committed to their E-journals and are "converts" to the cause. Nevertheless, their explanations go beyond vested interests and are very convincing. It is apparent that with regard to scholarly publishing the media does affect the message.

The opportunity to study the changing nature of scholarly publishing today is very important. We are at the beginning of a new process that will have tremendous impact on what is considered an academic journal. Whether or not we are truly at the onset of a "revolution" is still uncertain. But there is no question that the new technology is introducing important changes. And there is the possibility that we may indeed be witnessing a fundamental change in how ideas are exchanged, critiqued and developed.

Methodology

Developing the Questionnaire

In developing this component of the study it was decided that a series of detailed questions revolving around the creation and management of E-journals would be an important contribution to the overall understanding of electronic publishing in Canada. On making this decision the question developed about how this was to be accomplished. After discussions within the research team, the consensus was that the best means to accomplish such an assessment would be to interview approximately 8-12 editors of E-journals. The interview questions would revolve around eight main elements:

1. Decision to create the journal
2. Institutional support provided to the journal
3. Format of the journal
4. Nature of Peer Review within the journal
5. Subscription policy of the journal
6. Archiving of published materials
7. Copyright issues and
8. "Lessons learnt" in the development of the journal

Selection of Journals

To undertake the detailed case studies, the first decision to be made was the selection of journals to be interviewed. While it was never the intent to make this section of the study representative of all Canadian E-journals in the fields of the social sciences and humanities, there was a desire to attempt to maximize the type of journals to be included in the case studies. In ideal circumstances, all of the interviews would have been conducted face-to-face. We anticipated that many of the editors would have significant insights both with regard to our prepared list of questions and in terms of their individual experiences. However, the financial limitations of the project meant that face-to-face interviews would have to be conducted either at the location of each interviewer or somewhere on the travel itinerary of one of the interviewers. Since this would limit the selection of cases, it was necessary to allow alternate venues for the interviews such as telephone and e-mail.

In selecting the journals to be examined, we used the following criteria to choose our case studies. The journal could either be created solely as an electronic journal or have evolved from an existing paper journal. Logically there seemed no reason to exclude either type of electronic journal.

Similarly, we made no distinction between a new or a mature E-journal. Broadly speaking all E-journals are relatively new. Nevertheless, we were able to find some journals that have been in existence for a

number of years. We also wanted to include a wide geographical basis for the journal selection. However, these decisions were not as important as determining what constitutes a Canadian E-journal.

In order to be included in the study the E-journal needed to be "Canadian". There was considerable debate about how this was to be operationalized. The simplest means to do this seemed to be to use the following criteria:

1)   The journal should be based at a Canadian institution. This criterion will, over time, become more and more meaningless. It is expected that as experience is gained in electronic publishing, more interactions will be conducted though the Internet and thus render geographical considerations irrelevant. However, currently, it is possible to make such a distinction because most journals still have a specific geographic identity.

2)   The journal should also have a primarily Canadian editorial team. It does not seem necessary to worry about the nationality of the editorial board or editorial advisory board, but rather the editor and her/his immediate team need to be Canadian. Again, we expect that this type of distinction will become increasingly unimportant.

3)   To keep within the focus of this study, the journal main area of interest must be within the social sciences or humanities.

Using the above criteria the research group met and had a series of discussions to select the cases. This resulted in the selection of the following E-journals:

1. Journal of Conflict Studies
2. Theatre Research in Canada
3. Studies in Canadian Literature
4. Canadian Journal of Communications
5. Surfaces
6. Conservation Ecology
7. Journal of Military and Strategic Studies

One other journal was added later--International Electronic Journal for Leadership in Learning--and an interview was conducted with the International Consortium for Alternative Academic Publication (ICAAP). While not a specific journal, ICAAP is an organization whose mandate is to assist and facilitate the development of low-cost and free E-journals. Currently 32 journals are affiliated with ICAAP. Thus it was deemed appropriate to include an interview with its founder.

Findings

One of the most striking features of the interviews is the commonality of the responses; many of the editors repeatedly make the same points and quite strongly. First of all, it is clear that all the editors share a vision of progress that the E-journal allows. In other words, the editors see electronic publishing not only as a means of improving distribution of their product but also as a means of improving the product itself. This is not surprising given the personal commitment of each editor to develop her/his journal into a successful creation.

Related to this is the finding that many of the editors consider the E-journal to be something more than developing an alternative delivery system for academic publishing. Rather, it is stated both explicitly and implicitly that producing electronic journals is a *transformative process* that goes well beyond being a means of distribution. The E-journal, in fact, is seen as changing the very nature of academic discourse. While all the editors acknowledge that this change is not coming easily, most do contend that the change has the potential to radically alter the manner in which intellectual discussion is facilitated. One of the editors goes as far as to suggest that the very nature of who "owns" ideas will soon be challenged. The main source of this change is the potential ability of electronic journals to cross boundaries both in terms of journal production and journal dissemination. Thus a common view shared by most of the editors is that once the E-Journal has resolved certain technical problems (such as the archiving of older material) and has become "respected" in the eyes of most academics, the use of electronic publishing may revolutionize academic discourse in the humanities and social sciences.

A second somewhat less esoteric finding common to all of the journals relates to the opportunistic nature of the creation of the various E-journals. It became apparent that the editors interviewed can be characterized as academic entrepreneurs. Each saw certain opportunities that allowed them to develop their journals with very limited resources. However, this opportunity came with the need to devote substantial personal effort with limited institutional support. In fact, most (but not all) of the editors were not so much interested in the development of a "new" type of journal, but instead were more focused on developing a non-conventional means of expanding the discussion in their specific field of study. It was clear that because these individuals seem to be either junior in their fields or operating outside the normal hierarchy of their fields, there was a need to "scramble".

It needs to be noted that the nature and characterization of the editors was not an initial focus of this study. Thus these observations have to be treated with a degree of caution. A follow-up to this study is the need to examine whether the editors of E-journals are "different" from editors of conventional journals in the humanities and social sciences. On the very limited basis of this study there seems to be reason to believe that this may be the case but more research is needed. But if it is the case that a new

"type" of editor is being created, interesting questions regarding the very nature of academic discourse in Canada follow.

A third major finding of the study is the lack of attention that many of the editors seem to give to the issue of archiving. The interviews suggest that many of the editors do not concern themselves with the problem that many in librarians now face with regard to maintaining and storing electronic materials. Some of the editors go so far as to assume that leaving their material on their websites constitutes archiving. The reality is that there is no agreement about how to best handle the archiving issue. A small number of the editors do see this as a problem, but none see this as a priority for themselves.

While the sample size of this study is small, findings from the web-harvesting component of the project amplify the significance of the problem. Out of 131 web sites surveyed, only 8 explicitly state that they take steps to archive their materials in a means that provides some assurance of actually maintaining the information in the event that the journal is terminated. Furthermore, it was also found in the survey component of this study that for over 75% of those surveyed, one of their concerns is the lack of adequate archiving of materials when using electronic services. Thus it was interesting for the research team to note what seems to be a disconnection between users and providers. This is a problem that will become greater if there is no improvement in the long-term storage of materials. But it is apparent from the interviews with the editors of E-journals that they will not be the ones providing the push for archiving development.

Another interesting finding common to most of the E-journals is the manner in which the editors view their "reward" system. Not surprisingly, most do not feel that their main institutions (i.e., universities) are adequately aware of their journals. The tendency is to feel that the return on their effort in terms of university recognition is inadequate. Instead most draw their reward in terms of being pioneers. There is pride in being a leader in the field by producing an electronic journal.

Thus, overall, their creators see the creation and establishment of the E-journals that were examined in depth as representing something beyond a new style of delivery. There is no doubt that the editors are "true believers" and it should not come as a surprise that they feel that their journals have the potential to alter and improve the means of academic discourse in the humanities and social sciences. Nevertheless, the points that they raise with regard to the potential of the E-journal to cross boundaries in terms of access and format are important points and warrant close attention.

Having provided these general observations, this examination will now shift to the responses of the editors to the specific elements of the interviews.

1) Reasons For Creation

As mentioned above, one of the main reasons for the creation of an E-journal was the desire to take advantage of the new information technology. The editors interviewed tended to see a multitude of opportunities offered to meet their specific requirements. Established journals that added an electronic component to an existing paper production saw the new technology as offering the chance to expand the journal's current readership. E-journals created as new entities tended to be viewed as a means of fulfilling an academic void in a relatively easy manner. Both types of journals saw the Internet as a means of providing a greater audience in the long-term.

It is worth noting that their editors often saw the E-journals as being cheaper creations than paper journals. While the editors of such journals were quick to point out that the production of an E-journal is not without its own costs, it is much less than the costs of creating a paper journal. Part of this logic means that editors of E-journals can proceed with less risk than editors of paper journals. While no one talks specifically about the potential failure of his or her E-journal, it stands to reason that it would be less significant than the failure of a paper journal.

It is also important to note that while overall costs are seen to be less for E-journals, the editors report that in most instances they were required to string together a number of funding opportunities. All report that there were important costs with regard to equipment (i.e., computer and access to a server) and expertise (usually in terms of computer skills). However, in most cases it was not necessary to acquire these assets from scratch. Instead, the editors had access to them through other connections with their relevant institutions. In many instances the equipment and expertise were tasked to other activities and the editor was able to exploit their existence. Thus, there were real costs associated with the creation of the E-journals, but the nature of these costs tended to be absorbed through other functions.

Several of the editors also saw the new communication technology offered by the Internet as an opportunity to improve the production of articles in their fields. For example, one of the editors specifically states that the main reason for the creation of their journal was a recognition that the existing paper journals in their field tended to be backlogged. This was due to the restrictions that paper journals face in terms of the length and number of articles that can be published at any one time. Thus it is felt that an E-journal increases both the speed with which articles are published and the number of articles that are included.

Another editor points out that the desire to reach audiences who cannot afford the subscription costs of paper journals was an important motivating factor in the development of their E-journal. It is suggested that many of the paper journals produced by commercial publishers are becoming too expensive for many parts of the world. This creates a situation where only the richer states are able to use and benefit from the most current journals. This particular editor suggests that by producing an E-journal that is accessible worldwide at no cost, they are able to contribute to the remedy of this inequity.

A point that is not explicitly made by any of the editors but that did arise implicitly is the fact that journals that exist only in electronic form allow the editor to become the publisher of the journal. This means that the individual or team serving as editor has considerable more power and influence over the complete direction of the journal than is the case with traditional paper journals when all decision-making power resides in the hands of the editors. While the specific implications of this are not clear, it seems logical to assume that such a development will have important ramifications in the long-term.

2) Institutional Support

Overall, most editors reported that there is little direct institutional support provided to E-journals. Many of the journals are working off grants or other outside funding allotments. To subsidize their efforts several of the editors report that they rely on student assistance. This lack of long-term support is problematic. The observation has already been made that many of the editors who found these journals do so because of their belief in the merits of the project. They are then able to cobble together the necessary support in part because of their commitment to the project. The question then arises about what will happen when their enthusiasm begins to wane or when others succeed them. It appears that universities have yet to develop the means of providing on-going support to allow the continuation of E-journals once they begin to mature.

Of equal concern is the lack of indication that universities give as equal credit to work performed for E-journals as they do for traditional paper journals. Many of the editors cite their frustrations at not being taken as seriously as editors of paper journals are. It is difficult to know if this is due to the relative "newness" of the E-journal or if some other factors may be causing this difference in perception. However, if this hierarchy of value remains against E-journals, the long-term potential of the scholarly E-journal will remain in doubt.

The one area of support cited by some as important is support received from university libraries. Several of the editors comment on the technical support that they receive from their libraries. This is usually in the form of computer expertise. Once again, this is partly a function of the editors taking advantage of existing resources. Much of the assistance that libraries provide comes from abilities developed for purposes other than electronic publishing, but have obvious overlaps. In some instances the support is substantial enough that the library is becoming the de-facto publisher. This interesting development has not received much attention. However, in some ways, this is an obvious evolution of the role of the library in the new information age. Instead of simply being a depository of information, libraries are beginning to play a much more active role in the development of knowledge. The advantage of an increased role of libraries in providing assistance to those who wish to develop their own E-journal means that there will be a corporate memory about how best to develop such a project. Each new editor will not have to re-discover each challenge for him or herself. Perhaps even more important, the library is also in a better

position than individual journals for ensuring that long-term funding is secured. Third, librarians are in the best position to develop standards for the problem of archiving the journal material produced over the long-term.

3) Format

Two key issues emerge regarding the topic of format. The first centers around the opportunities afforded by the very nature of E-journals. The second addresses current technical challenges regarding the computer languages used by the journals.

The entire foundation of electronic publishing allows for the breaking of several boundaries that traditional journals have always faced. As mentioned previously, some of the editors founded their journals so that they could reduce (and in some instances eliminate) common publishing bottlenecks. In theory, an electronically produced journal can provide almost immediate publication of articles once they are academically vetted. As several editors point out, there is no need to wait until an entire slate of articles is prepared before an individual article is posted. The only time restraint is the length of time it takes to review an article before it is published. One of the editors points out that they have developed a system in which their submissions are accepted electronically, sent to reviewers electronically, reviewer comments returned to the editors electronically, requests for revisions sent back to the article authors electronically, and the entire process is monitored electronically. In theory, this means that the entire process could take place without the use of any paper.

There is also no need to limit the number of articles posted in any one issue of the journal. Unlike paper journals there is no increase in costs whether two or twenty articles are posted. Furthermore, there is no need to limit the page length of any article. Many of the editors suggested that they are not concerned about actual page length as long as the article meets academic standards of acceptability.

Several editors make it clear that they have only begun to scratch the surface with regard to the actual potential of what can be delivered electronically. For example, it has been possible for some time now to send video over the Internet. Thus, it is possible to extend the boundaries of E-journals beyond text. Several of the journals already include a link to the actual documents that are cited in some of their articles. It is possible to foresee video footage of an event included as a new style "footnote". Instead of reading what an individual says, it may be possible to hear what they say and watch as they say it.

From a practical basis, these developments do pose challenges. If E-journals begin to publish each article as it is accepted, there will be a requirement to develop a new means of citation. Some method will have to be accepted to replace the usual citation of volume and number. A second problem comes back to the issue of acceptability. How will academics respond to the continual posting of new articles?

Given the pressures that most researchers already face, is it practical to think that they will continually visit a wide number of E-journals to check if a new article has been posted? Even if notification is sent by e-mail, there is still a danger that the researcher will simply tune out such notices.

With regard to the issue of using multimedia for articles, the full ramifications of such use are unclear. For example, would hearing and seeing a historical figure enhance a history article or is it better to read what was said? Interesting questions arise about the very nature of knowledge in this case. Will actually seeing the individual give more meaning to their words or will it distract?

What is clear is that many of these possibilities are not yet fully understood. There is a need to monitor the academic world's acceptability of many of these new formatting techniques. It will be interesting to see if a generational gap develops. Even more important is the need to evaluate whether these new tools act to alter the meaning. Will the new means of providing information simply act as distracting noise or will it provide a greater richness to the means of developing understanding of specific issues?

This is particularly so given the general adoption of SGML in the current incarnation of many E-journals and the future potential for the adoption of XML. In the traditional printed word, information is carried both by the content and by the visual appearance of the text. However, in the case of these computer languages, only the structure of the content is defined; the appearance of the content is not defined until the context of the viewing is identified. Therefore, an SGML (or XML) document might look very different on-screen as opposed to printed out. If this is the case, the information carried by traditionally accepted visual cues might not be present in some contexts. Will this alter meaning? This has yet to be determined.

4) Peer Review

Related to the issue of being a "pioneer" is a recognized need by all the editors to ensure that their journals meet academic standards. All the editors are adamant that the most important requirement is peer-reviewing to ensure that there is no question about the quality of the papers to be included. Some of the editors explicitly state that given the general tendency of most academics to view E-journals as less credible vehicles of academic discourse than paper journals, there is a need for them to be even more vigilant about the standards of their journal. Related to this desire for credibility is the practice of developing a substantial editorial/advisory board listed on the masthead of the journal. The inclusion of the leading experts in the relevant fields is seen as a means of giving the journal increased respectability.

The nature of electronic publishing also has the potential to change the nature of peer-review. On a process point, one of the editors points out that they are attempting to automate their system of peer-review to the degree that the editors do not know who is reviewing any specific article. The

plan is to develop a list of experts who are willing to act as referees with their particular expertise entered in the journal's data banks. When an article is received it is entered into the system by focus and "matched" to the referees whose expertise most closely fits the article subject. If such a process develops successfully it introduces a further check and balance of the referee process. It will be impossible for an editor to influence the review process by selecting only referees who are sympatric to the article.

Another point that surfaces in several of the interviews focuses on the meaning of peer-review. Currently the trend is to emulate the practices developed by paper journals. However, the point is made that it is already possible to redesign this process electronically. One of the editors suggests that the humanities and social sciences might wish to copy the hard sciences in the practice of pre-publication. This means that an article will be posted with the specific understanding that it has not yet been peer-sanctioned. Journal readers offer their comments on the pre-published articles. In this manner the entire community of scholars has the opportunity to respond and offer their evaluations. This works best in instances where the community is relatively small and topics are highly specialized. There is no reason why this could not work for the humanities and social sciences. However, the problem that larger academic communities face is that their greater numbers mean that their attention tends to be more diffused. Nevertheless, if scholars in the humanities and social sciences adopt the practice of pre-publication, there is a need to rethink the meaning of the entire peer-review process. Electronic journals have the technical ability to facilitate such a change. The question is whether the academic community is willing to accept such a change.

5) Subscriptions

The issue of subscriptions raised some interesting discussion with a number of the editors. It became clear that there is a substantial range of opinion regarding this issue. Some of the editors see E-journals as a possible means of expanding their existing list of subscribers and consequently expanding their resource base. On the other hand, several of the editors are adamant that the raison d'etre for being an E-journal is to provide free access. Once again it is not surprising to find that the difference tends to be based on whether or not the E-journal was developed from an existing paper journal or created solely as an E-journal.

A number of the editors are determined to provide their journal free to all interested readers. Their reasons range from reaching wider audiences and facilitating cross-disciplinary research to trying to help smaller learned societies and floundering paper journals. The issue of accessibility is raised once again. One editor argues that articles are not commodities to be bought and sold but instead should be seen as "carriers of thought". This is also related to the desire of several of the editors to ensure that their journal is available to poorer regions of the world.

However, the question still arises about how such journals are to remain viable if they are not to depend on a subscription base. Some suggest that one alternative is to develop a means by which

universities pay for journal production up front rather than having individual scholars or libraries pay for subscriptions from commercial publishers. This would entail that universities accept as part of their mandate the deployment of resources to support editors on their respective campuses. Several editors make the point that this would not be a particularly difficult task, given existing responsibilities of librarians.

One last point echoed by all of the editors is a desire to know who is reading their journals. Most are confident that the technology is developing with which they can track their readership. But those who do not require subscriptions find that current techniques for tracking usage on the web site are not detailed enough. While the current technology allows for monitoring the domain from which the hits on their journals originate, it is still too vague to be able to fully monitor who is reading their journals. Several editors state that they find it necessary to place web counters on each of their articles in order to have any meaningful understanding of their readership.

6) Archiving

One of the issues of greatest misunderstanding among the editors interviewed is that of archiving the material produced by their journals. While some of the editors do understand what is necessary to ensure that the information produced by their journals is preserved, several of the editors do not fully appreciate the technical requirements. Simply placing back issues of the journals on a web-page will not ensure that the material is preserved. Yet this is what several of the editors understand archiving to mean. Furthermore, this is not limited to the editors interviewed in this study. The harvesting component of this project found that only a small number of electronic resources make the effort to ensure that their information is preserved.

It is clear that this is a problem that will grow unless some form of agreement is reached about how to best store the ever-increasing amounts of information being produced. It is not clear how such agreement can be reached, nor is it clear what are the best technical means by which to store the material.

7) Copyright

It is clear that the issue of copyright will become of major importance. While it was found that the existing policies of most of the E-journals simply emulate the practices of paper journals, it was equally apparent that this is because the full ramifications of the changing nature of electronic publishing have not yet been thought through.

The copyright of most of the articles resides in the journal that produced the article. However, what has not been thought through is the impact of the shift to an electronic medium. What

happens when the journal is reproduced on a mirror site? Is that a copy of the article or is it simply the journal being distributed in its normal format? What does reproduction mean? Is the downloading of an article reproducing it? These are questions that will need to be addressed in terms of the developing laws of intellectual property.

8) Lessons Learnt

The main lesson learnt by all that were interviewed is that the production of an electronic journal is very much a work in progress. No matter what the age of the journal, whether it is newly-created or has been in existence for several years, all the editors made it clear that they are still developing and learning how best to use the new technology (which is also constantly changing and developing).

There is a general awareness that one of the greatest challenges facing E-journals is not so much the technology, but rather its acceptance by the greater academic community. As long as E-journals are viewed as suspect or inferior to traditional paper journals, the full potential offered by the new communication technology will remain suspect. Thus the real problem is one of acceptability.

There is a need to develop a means of ensuring that there is an ongoing ability to fund E-journals. While the current generation tends to be supported by the enthusiasm of their creators, there is a need to develop a secure means of support that will remain once these individuals are no longer with the journal. Specifically tasking libraries to funding support may be a partial answer to this problem.

The major point made by almost all the editors is that what they are involved with is not a journal per se but rather an academic process. While the degree of success varies from journal to journal they are redefining the core elements of scholarly discourse in the humanities and social sciences. But given the fact this is a work in progress, the true nature of these changes has yet to be fully appreciated.

It is clear that this study has only scratched the surface on electronic publishing in Canada. The small sample selection does not allow this aspect of the report to offer any findings with a high degree of certainty. But what the study has been able to do is identify several important questions that could have a revolutionary impact on the nature of scholarly discourse in Canada. Traditional boundaries are being challenged but the result of this challenge remains to be seen. Thus it is of the utmost importance that the issues raised in this study continue to be examined.

Appendix A - Questionnaires

JOURNALS CREATED AS E-JOURNALS

DECISIONS TO CREATE THE JOURNAL

1) What were the factors that led to the creation of your journal?

2) Why did you decide to make it an E-journal? If there are more than one reason could you please explain which were the most important?

3) Was the decision to make the E-journal made at the time of the creation of the journal or due to constraints in resources?

INSTITUTIONAL SUPPORT

1) What type of support have you received in developing your journal?

     i) financial

     ii) personnel

     iii) release time

2) Does your university give as equal credit to work performed in your E-journal as to work performed in a paper journal? If not, why is this the case?

3) Do you use any electronic infrastructure at your university or have you had to develop the infrastructure on your own?

FORMAT

1) What is the composition of your editorial board? How large is it? How did you select it?

2) What is the balance of your submissions?

     i) articles

ii) book reviews

iii) conference reports

iv) website reviews

v) others

-Does the E-format allow you to incorporate elements that are different from traditional journals? If so, what are they?

3) How often do you publish? If it is an irregular schedule, what criteria do you use to trigger the decision to publish an issue?

PEER REVIEW

1) Are the articles in your journal peer-revived?

2) If so, how is this done? How many reviewers per article?

3) Do you have problems in getting reviewers?

SUBSCRIPTIONS

1) Do you charge a subscription?

2) How large is your subscription base?

3) What challenges and/or advantages do you face as an E-journal in building a readership?

4) Do you track your readership?

5) What mechanisms do you use to control subscriptions?

6) Would you consider producing a print version? Why or why not?

ARCHIVING

1) Do you archive your journal?

2) If so, what format do you use? How long do you maintain your archives?

3) Do you place your journal into any institutional or national repositories?

COPYRIGHT

1) Who has the copyright to the material posted on your journal?

2) Do you have an explicit copyright policy? If so what is it?

3) Do you retain the rights for republishing (i.e., Inclusion in an article database)?

DEVELOPMENT

1) Are there any "lessons" that you have learnt from developing the journal?

2) Were there any barriers that had to be overcome in the process of developing the journal?

3) Are there any conditions in which you would convert the journal to a print-only journal?

JOURNALS THAT ARE CONVERTED FROM TRADITIONAL TO ELECTRONIC

CONVERTING TO AN E-JOURNAL

1) Do you presently have a WWW version of your journal available?

2) Do you now have only an electronic form or a written and electronic form of your journal?

3) Why did your journal decide to create an electronic version? What did the editors think would be the principle benefits and/or benefits of going online?

4) Have these expectations been met?

5) Did the benefits and/or costs of creating a digitized version of your journal become immediately apparent? If not, how long do you anticipate it will be before the impact of the online version will be noticeable.

6) Are there differences between the print and electronic version? If so what and why?

7) If you currently have a print and electronic version, would you consider discontinuing the print version? What conditions would have to arise to bring about that change?

PROCESS

1) What markup language are you using (i.e., HTML, another SGML DTD, XML or another user-developed application?)? Are you using an imaging and/or audio format? If so what are you using? Why did you choose this particular process?

2) Is the conversion and editing process more or less time consuming than you anticipated?

3) What, if any, access restrictions are you placing on the electronic version of the journal?

4) Have there been many problems in the actual conversion process--for example, do you have any difficulties capturing and displaying special characters from mathematical and/or technical equations?

5) Have you found that certain desktop publishing software lends itself more to converting to your markup language? If so what is it?

6) Do you release the print and electronic versions at the same time? If there is a lag, what are the reasons for the lag?

EDITORIAL BOARD

1) Did the idea of an electronic version appeal to all members of the journal's editorial board? If not, why?

2) Have the opinions of the editorial board about publishing on the WWW changed since creating a web version?

3) Has the composition and nature of the editorial board changed since moving to an electronic version? If so, why?

SUBSCRIPTIONS

1) Have subscription numbers changed at all since creating an electronic version? If so, how?

2) Do you believe the profile of the journal increased with the creation of a Web version?

3) What has been the reaction, if any, of subscribers to the online version?

4) Do you have a subscription model for print only, electronic only, and print & electronic, or do you have one price for everything? What factors influenced your choice of subscription models and pricing?

AUTHOR RESPONSE

1) What has been the reaction, if any, of the contributing authors to having their work placed on the WWW?

2) Did you have to renegotiate rights for republishing in a new format?

3) Were there circumstances where you could publish in one format and not the other?

PEER REVIEW

1) Are the articles in your journal peer-revived?

2) If so, how is this done? How many reviewers per article?

3) Have you changed the process of review since your journal was transformed into an E-journal?

ARCHIVING

1) Do you archive your journal?

2) If so, what format do you use? How long do you maintain your archives?

COPYRIGHT

1) Who has the copyright to the material posted on your journal?

2) Do you have an explicit copyright policy? If so what is it?

DEVELOPMENT

1) Are there any "lessons" that you have learnt from developing the journal?

2) Were there any barriers that had to be overcome in the process of developing the journal?

3) Are there any conditions in which you would convert the journal to a print-only journal?

Electronic Publishing in the Humanities and Social Sciences:

A Report to the Humanities and Social Sciences Federation of Canada on Survey findings

Resource Harvesting Working Group

Introduction

This part of our study aimed to fill a gap in knowledge about the state of electronic scholarly publishing in Canada. We all have the sense, from talking to colleagues, from demonstrations at conferences, from stories in the popular and academic media, that something is happening in electronic scholarly publishing, that this is a burgeoning new area. But beyond the buzz, what is the magnitude of electronic publishing now? In what ways are Canadian scholars adapting their publication of research results to the electronic medium? In what ways are scholarly publication modes being changed by the new medium?

Our aim for this part of the study was to inventory the Canadian scholarly publications that are currently available in electronic form. Although it is probably simply impossible to be completely exhaustive in such a search, we did want to find as much as we could. The most important reason was that we wanted to form as accurate an estimate as we could of the current volume of electronic scholarly publication in this country, and to be able as well to subcategorize such publication by discipline and other relevant descriptors, such as location, in order to form an impression of the possibly differing penetration of electronic modes of scholarly communication in different sectors of the Canadian academy. A secondary aim was to form a relatively complete picture of the variety of forms of electronic scholarly publication – what kinds of resources, for example, are people providing on the World Wide Web, with what user-base, what standards, what apparent intent?

A relatively complete inventory of electronic scholarly publishing in Canada could also be an important resource in its own right. A database of scholarly publishing projects in Canada could be a research tool for others interested as we are in the scope and nature of such projects; it could be a resource for scholars seeking particular kinds of data or electronic journals in particular fields; it could serve to draw attention to Canadian publishing in this new medium, or even to disseminate such publishing. Finally, we hope that our research will help to foster an appreciation of the very real contributions that Canadian scholars have made to broadening and deepening the uses of electronic publishing technology for the academy in general. In some sense, every Web site or other resource in our database is the work of a pioneer in a new medium, a medium that is only slowly gaining the confidence of the academy. We salute the work of these pioneers.

Conceptual Issues

There are conceptual issues at the heart of the phrase "electronic scholarly publishing in Canada." Publishing is by no means the same enterprise in the virtual world as it is in the print world – there is no physical object to "make public," but on the other hand, just about anyone can "publish" just about anything. National frontiers may mean little to a globally-linked network in which virtual communities may transcend national or continental boundaries. From one point of view, everything accessible on the Internet is "published in Canada." And no marker delimits the scholarly from the non-scholarly if everything exists in a seamless Web of information – the Internet is less like a library than it is like a hoarding covered with posters; a supermarket bulletin board; or somebody's great-uncle's grotty basement filled with back-issues of magazines, personal letters, advertising, and pornography.

These conceptual conundrums had some distinctly practical implications for the research team. If we were going to identify a group of resources as representing electronic scholarly publishing in Canada, we needed to be very clear about what we would consider to be "in Canada," what for us would constitute the "scholarly," what acts and agents we would consider to constitute "publishing."

Identification of Canadian Origin

In many ways, the physical location of either a computer or a scholar is irrelevant in today's networked world. We could cite the case of a colleague in Newfoundland whose computer keeps records, for international access, of the proceedings of a scholarly discussion list that is truly international in scope and most of whose members reside outside of Canada. Similarly, it would not be unusual for a scholar in Canada to make substantial contributions to an electronic text collection or other database that was physically located in Sweden, Japan, or the United States. The question of national origin of an electronic resource is therefore a vexed one.

Without pretending to untangle all of the legal and philosophical issues involved here, we made the decision to attend primarily to sources that were physically located in Canada and that also published scholarship produced by Canadians. Although from many points of view this is an artificial way of limiting the field of our search, this definition seemed most consonant with what we took to be the scope of our mandate.

Definition of "Scholarly"

Because the Internet is a domain in which peer-refereeing structures and the other ways in which scholarly content is assessed, evaluated, or guaranteed in the print world do not (or not yet) obtain, and in which the "native" structures (approval to mount a file on a server, for example) have typically been used in a more permissive way, defining a "scholarly" electronic publication can be problematic. Is a publication scholarly merely because it is authored by someone who holds a university teaching

position? Is it scholarly merely because it is to be found on, or linked to, a university library Web page? Intuitively, the answers to these questions should be negative, and we certainly came across Web pages authored by university teachers or housed on university servers that we would have difficulty identifying as scholarly. And on the other hand, the new publishing technology may allow some previously disenfranchised scholars with no access to university computers and indeed no affiliation with a university to post materials that are intrinsically worthy of the designation. In the end, our position was a bit of a compromise. Without believing that affiliation with a university conferred any unquestionable status on a publication, we found ourselves, as a matter of practice, taking the Web sites of universities and other scholarly institutions as points of origin for our researches, while trying not to ignore the possibility that legitimately scholarly publication is now being done outside such institutions. We discuss our later sifting of what we found, under "Data Analysis" below. In examining our finds, some of the same issues came up again in sharper focus.

What is a publication?

In the print world, a publication is a book or journal that at a certain point in time is printed in a press and of which multiple copies are then available. The high costs of production mean that even non-academic publishers are quite careful about what they publish, whereas presses that depend upon Aid to Scholarly Publication grants have an extremely rigorous cycle of considerations before accepting a work for publication, and such rigorous consideration also characterizes scholarly journals.

Many things are not the same in electronic publishing at all. Not only is it possible for academics and others to publish just about anything, but the general characteristics of electronic publications are quite different from those of print publications. Except for the (still relatively rare) scholarly publications on CD-ROM or DVD-ROM, electronic publications do not necessarily have a fixed form or content. Web resources can be, and often are, endlessly updated, improved, or altered by their owners – may even have regular updating as a consistent feature. Other forms of electronic resource simply are inherently dynamic – for example, a listserv or newsgroup.

The mechanisms of publication may be so dissimilar to the print world that analogies are hard to make. Is a professor who prepares a Web site on Canadian history its author, its publisher, or both? Is the university on whose server she posts it also a kind of publisher, even if it does not exert any control over the contents? What about the funding agency that provided the graduate student assistance to prepare the HTML files? At what moment can we say that such a work has been published, when there is no press run?

Rather than make artificial decisions about these issues, we determined that the best course of action was simply to survey the existing state of things and use our discoveries to bring what clarity we could to these vexed questions.

We did decide that we were looking for electronic objects that were persistent, in the sense that they could be expected to be available in the same virtual location for some time (whether or not the content

was dynamic), and that were of value to scholars. Beyond this, our thinking was substantially aided by analysis of the variety of resources we found (see "Data Analysis" below).

Methodology

To understand the nature of scholarly electronic publishing, it is necessary to identify both venues where scholars are publishing electronically and the characteristics of what is being published. Even within the boundaries prescribed by the mandate of the study, a broad range of material exists. Given the limited resources of the current study, it was not possible to identify, catalogue and categorize all items answering to this rubric. Therefore, the goal was to create the genesis of a databank of electronic resources.

Even recognizing resource limitations and the need for strategic harvesting, we chose to err on the side of inclusion rather than exclusion. Without a full understanding of the nature and types of electronic publishing, we decided to include items that existed at the periphery of the study's focal domain in the initial identification of scholarly electronic publishing in humanities and social sciences subject areas. While this presented a challenge in terms of the potential number of items that could be identified, the cost in time and resources was deemed to be acceptable to ensure that critical items were not omitted.

Having established the general principles by which the electronic resources were to be identified and catalogued, a four-phase action plan was developed to create the databank:

1.   The creation of a study instrument and the associated tools necessary for its implementation.

2.   A pre-test to evaluate the instrument and provide the basis for starting the search.

3.   The identification and cataloguing of electronic resources

4.   A review of the data collected and subsequent refinement of the selection criteria based on the findings of the review.

The Instrument

As the product of the study would be a databank, the primary instrument was a definitional structure for the data. To ensure consistency with other efforts in cataloguing electronic resources, the study instrument was based upon the Dublin Core Metadata Initiative (version 1.1 – see http://www.purl.org/DC). One of the key objectives of Dublin Core is to provide an extensible infrastructure for the creation of descriptive information on a resource, otherwise known as metadata. In developing the instrument, we chose to take advantage of that extensibility by adding three fields (metadata status, archiving status and referee status) to the fifteen data fields defined in the Dublin Core Element Set. These new fields were thought to be especially pertinent to the focus of the study.

The resulting 18 fields (Table 1) were then divided into three tiers of increasing level of detail. Essential

resource discovery data was located in Tier 1, while Tier 2 contained more descriptive elements. Tier 3 fields delved more deeply into the nature and characteristics of the resource. At each tier, cataloguing time increased due to increasing difficulty of obtaining information necessary to complete that tier.

Table 1. Enhanced Dublin Core Categories

Tier 1	*Tier 2*	*Tier 3*
Title	Description	Contributor
Creator	Date	Archival Status
Subject (general)*	Subject (specific)*	Source
Format	Publisher	Relation
Identifier	Type	Rights
Language	Coverage	
Metadata Status		
Referee Status		

* "Subject" was further split into sub-categories (as explained below)

Definition of Tier 1 Categories

The **Title** is the name of the resource as given by the creator/author/publisher. In cases where the title is not clearly identified, efforts were made to determine the title preferred by the resource's creator(s) for formal references to the resource. As a general rule, standard bibliographic format was adhered to for this field.

The **Creator** is the primary party responsible for the content of the resource. As with non-electronic publications, the creator could be an individual, a group, or a corporate body. Where the creator cannot be identified, he or she is listed as "unknown."

The **Subject (general)** refers to the topic of the resource. The list of topics was adapted from Cornell Library's categories for electronic resources (Table 2). A second, more detailed subject field is provided in Tier 2.Only subjects of interest to the study were included, but a number of items in the final list (felt

to be borderline to the study) were left in the list to ensure that resources that crossed subject boundaries would not be omitted.

Table 2. Modified Cornell Subject Categories*
Agriculture
Anthropology
Art and Architecture
Business, Labor, Management and Economics
Canadiana
Communications
Education
Environment and Natural Resources
Food and Nutrition
General Interest and Reference
Geography, Maps and Spatial Data
Geology
Government, Law and Public Policy
History
Information and Library Science
Language, linguistics and literature
Music
Philosophy and Religion

Population and Demography

Psychology

Sociology and Rural Development

From http://campusgw.library.cornell.edu/cgi-bin/manntom2.cgi?section=networked&URL=gateway.html

The **Format** is the method of presentation of the resource or technology used to create the resource. A simplified form of MIME descriptors is used as a controlled vocabulary (Appendix A, Table A1).

The **Identifier** is the primary means by which a resource can be located. For web pages, the *identifier* is the URL (uniform resource locator) of that page.

Language specifies the primary language(s) that the resource was created in. *Language* was encoded using the ISO 639-2 standard (see Appendix A, Table 2).

Metadata Status indicates whether self-referencing metadata was present in the resource. For web pages, this was usually found within HTML headers.

The **Referee Status** refers to the type and nature of academic moderation that the resource has been subjected to. We distinguished two aspects of referee status and provided a restricted vocabulary for each:

1. Content control – the level of moderation prior to an item's inclusion in the resource:

- *No moderation* – no controls on content

- *Authorial control* – selection controlled by the author or creator

- *Selection committee* – selected by a standing committee or editorial board

- *Academic review* – reviewed by scholars prior to inclusion

- *Undetermined* – no clear indication given

2. Commentary control – the level of moderation applied to the discussion of the content:

- *No commentary* – no commentary was provided

- *Solicited commentary* – commentary had been solicited by the creator and/or publisher of the resource

- *Postpublication commentary, open* – commentary discussed the item post-inclusion in the resource and some means were provided that allowed open discussion by all interested parties

- *Postpublication commentary, moderated* – commentary discussed the item post-inclusion in the resource; means were provided that allowed discussion of the item but inclusion of comments was controlled in some form by a moderator

Definition of Tier 2 Categories

The **Description** is a short explanation of the content of the resource sufficient to distinguish it from similar resources. Resources can often contain their own short synopses or abstracts, sometimes within meta tags.

Date has two identifiable aspects:

1. *Status* – the current availability of the resource:

- *Active* – resource is currently maintained and shows evidence of additions and updates

- *Inactive* – resource is no longer current, no additions or updates within the last two years

- *Static* – resource describes an event for which no further updates or additions were possible

- *Unknown* – status of the resource was undetermined at the time

2. *Updated* – date of the last published update

Subject (specific) identifies the specific content of the resource as opposed to the general category contained in *subject (general)* and could contain multiple entries. Although two controlled vocabulary lists were recommended in the initial design (The IRIS Keyword Thesaurus and The Librarian's index to the Internet Subject List), the final approach used the lists as guides but allowed for additional keywords.

The **Publisher** is the entity responsible for making the resource available. This field contained three qualifiers:

- *Hosting* – the entity responsible for providing access to the resource. This could be the creator in the case of personal Web pages. Hosting covers more than simply providing the server on which the resource resides; it could include administration of the resource, providing for the resources the connection to the outside world, publicizing and promoting the resource and ensuring the availability of the resource. Commercial hosting entities were not included unless the entity was directly responsible for the resource.

- *Funding* – the entity responsible for funding the creation of the resource. In cases where the funding source is not apparent, "undetermined" was used.

- *Archiving* – the entity responsible for preserving the resource for posterity.

Type is distinguished from *format* in that it describes the nature of the content as opposed to the nature of the resource. For example, the type "electronic journal" could be delivered via a website by e-mail or by other means. Three qualifiers were used:

1. *Type (Nature).* Based on the Dublin Core DCT1 list of types (http://purl.org/dc/documents/wd-typelist.htm; see Appendix B, below) , the nature qualifier could contain multiple entries, but effort was taken to catalogue only the primary categories of the resource.

2. *Type (Genre).* The following controlled vocabulary was used:

- *Prepublishing print works (author)* – material created in preparation for traditional publishing made available by the author.

- *Prepublishing print works (organization)* – material created in preparation for traditional publishing made available by an organization, institute, or publisher.

- *Print works (author)* – material published in a traditional publishing venue and made available electronically by the author.

- *Print works (organization)* – material published in a traditional publishing venue and made available electronically by an organization, institute, or publisher.

- *Electronic only works* – material whose only venue of publishing was electronic.

- *Primary Source Archive* – a database or data warehouse of primary source material, primarily archival in nature.

- *Article Archive* – a database or data warehouse of journal article-style material,

primarily current in nature but not organized like a journal

- *Electronic Journal* – material corporately published in an electronic venue, similar to traditional journals but not necessarily refereed.

- *Scholarly Forum or Discussion List* – a discussion venue for scholarly issues, whether moderated or not.

3. *Type (Access)*. The access qualifier describes the controls that were placed on users of the resource or the general restrictions to access and consists of:

- *Open* – all users could access the resource

- *Restricted community*– only a select group of users could access the resource

- *Fee-based* – only users who pay a fee could access the resource

The **Coverage** specifies the temporal and spatial focus of the content of the resource. It was used when the resource had an intrinsic focus on a specific place or time.

Definition of Tier 3 Categories

The **Contributor** field describes entities that have added to the content of the resource other than the primary creator.

The **Archival Status** indicates whether a resource is being archived, and, if so, by whom and how. For example, consider the following archival strategies: backing up to CD-ROM, mirroring a site at another location, making back issues available in perpetuity on the same server, etc.

The **Source** identifies the source of the original if the resource is a derivative work.

Relation identifies works related to the resource.

The **Rights** field identifies the legal and copyright issues reflected in either the usage of the resource or the content of the resource. Information included in this field could consist of rights release, if rights were sought for the publishing of the content, the usage policy of the resource and other similar intellectual property issues.

Tools for Data Entry and Analysis

One of the characteristics of electronic resources is their accessibility from almost any location. Taking advantage of this fact, we developed a web-based form to provide a data-entry point for the study so that the search could be conducted from any locale and the data entered immediately. The results were sent to a text file stored on the web server. We wrote an application in the Perl computer language to translate this file into a human-readable format and to export the data to the web and to a database. The resultant database provided the basis for data analysis and refinement.

The Pre-Test

Prior to the full research programme using the study instrument, it was determined that a preliminary study or pre-test of the instrument was required. The pre-test was used to identify weaknesses in the instrument and to assist in formulating a search strategy. Two graduate students were allocated thirty hours each to begin searching for electronic resources of a scholarly nature in the humanities and social sciences. Only minimal direction was given to the students for finding resources to prevent possible preconceptions of the sources and locations of scholarly work from biasing the search. Items of significant relevance to scholarly publishing such as raw data sources and primary source materials were deemed eligible for inclusion in the databank.

At the end of the pre-test period, the students submitted reports detailing their experiences with regard to both the search process and the study instrument. The pre-test reports indicated the general robustness of the study instrument and the data-gathering tool. A number of fields required some clarification; however, no significant changes were made to the study instrument.

One notable difficulty was encountered in determining the subject of the resource. In the *Subject (general)* field, a number of controlled vocabulary terms were found to be outside of the scope of the study and were therefore eliminated from the final list used for harvesting. We decided to leave the *Subject (specific)* field relatively open and to allow for the inclusion of any keyword applicable to the resource.

In addition to their difficulties in using the controlled vocabulary, the students also found that much of the requisite data for a specific resource was not provided within the resource itself. Thus, a general request for information addressed to the parties responsible for the resource was developed and sent out by the students, where appropriate. While this resulted in a number of responses, we learned that the lack of information reflected either that the topic at hand was inappropriate in the context of the resource or had simply not been considered in the development of the resource.

The most formidable problem encountered by the students in the pre-test was the lack of obvious starting points in the search. A plan for locating and identifying electronic resources needed to be developed for the search phase of the harvesting study.

A three-part search strategy was implemented:

1.   Searching would begin at departmental and faculty home pages. Links to electronic resources would be identified through links from these departmental and faculty home pages.

2.   Once this level of searching was exhausted, the search would move to academic research libraries' home pages.

3.   After both of these venues had been exhausted, other national clearing houses and governmental link farms would be identified and used to continue the searching.

While this strategy biased the search in favour of Web pages, especially those housed at or part of post-secondary institutions, it allowed the study to proceed quicker than a broader, more expansive search strategy would have, since the resources discovered had a greater chance of falling within the domain of the study. As well, Web pages were the most accessible resources and the most commonly associated with electronic publishing.

Harvesting

Additional students were added to the study team and a total of 600 hours of harvesting time was allocated to the effort. Members of the study team were available to the students to guide searches in specific subject areas or to clarify issues as they arose. Results of the search were posted to a web page on a regular basis to ensure that all members of the study could monitor the ongoing progress and to allow students to identify potential duplication of effort. A student with facility in French was specifically sought to ensure the capture of French language resources.

After the completion of the students' search effort, it was recognized that the data needed to be evaluated and the selection criteria further refined. As stated above, the initial strategy opted for a more inclusive approach, at the risk of capturing resources extraneous to the focus of the study. The University of Calgary librarian for electronic resources evaluated the results and further categorized the resources. After eliminating duplicate items from the database, she evaluated the remaining results and identified three categories of resources:

1.   Electronic resources that were clearly of a scholarly nature possessing scholarly intent, comprehensiveness or a critical component. These provided the basis for primary data analysis.

2.   Electronic resources that would be of interest to scholars and researchers but not possessing clear scholarly intent.

3.   Resources that were outside of the study focus. (These items were eliminated from the final version of the data bank.)

After reviewing the harvested data, we felt that another round of searching for electronic resources was

necessary to ensure that key electronic resources were not missed. To yield a data set different from the existing one, a variety of other search strategies were used. Electronic journals, archival collections and digital libraries were identified as common types of electronic resources and a more exhaustive search was conducted using institutional and society-based origin points. Metasearch engines were employed to identify electronic resources that may have been missed using link pages. Topical searches based on the broad subject categories were also used to identify electronic resources.

The second pass at searching doubled the number of resources found in the first two categories. This suggested that the overall data analysis could only speak to the resources discovered. Absence of data on a particular type or kind of electronic resource or within a specific subject domain did not necessarily mean that no resources of that kind existed. Again, this was not surprising to the research team as it was recognized that the search strategies did have an inherent bias toward certain types of electronic resources. This also indicated that a truly comprehensive survey of electronic resources would require multiple search strategies to effectively identify all possible electronic resources, if it was indeed possible. However, in order to investigate all possible strategies required more time and resources than were available to the study.

We discovered during the review phase that a large number of links had ceased to be active since our initial harvesting. After correcting items where the address had been initially mistyped, we found that there were quite a few that had either changed address or had been shut down during the brief time since the beginning of the study. The implications of this pattern indicate that any search effort aimed toward identifying electronic resources needs to be an ongoing effort and that, once identified, electronic resources need to be periodically reviewed to identify changes to the resource.

Data Analysis

General nature of the database.

The harvesting resulted in an initial database of 389 sites. This was later expanded to include many other sites, but because of limited time we focused our analysis on the initial results.

Because of the inclusive and expansive nature of the study the database included a wide variety of types of resources. To focus our analysis we decided to divide the data into three broad categories.

Category One: Sites that were clearly of a scholarly nature

This category contained sites that shared the following characteristics:

- Presented the results of scholarly research, and/or presented source materials that were of importance to scholarly research.

- Dealt with topics that related directly to the areas funded by the Social Sciences and Humanities Research Council of Canada.

- Content was attributed, with the individuals or organisations responsible for the content identified.

Examples of the type of sites included in this category were:

- Journals with full text

- Collections of text documents

- Digitized primary source materials

- Thematic bibliographies

- Archival inventories

- Portal sites, which are thematic collections of links to web sites

- Review sites that included a variety of material on a single topic, for example original works, previously published works, links to other sites, sounds, or images.

The sites in this section of the database illustrated the various ways creators benefited from using the Internet to present information.

- **Distribution:** Web publishing allowed creators to make works available to a wide audience without distributing individual print copies.

- **Hypertext and hyperlinks:** Links were created to relate materials within a site or text, for example through annotations and references.
Links were used to connect to materials outside the site, in the case of portals this was the primary purpose of the site.

- **Database creation:** The ability to create searchable collections of material was frequently exploited by creators. Some examples where this was most effective were archival inventories, bibliographic databases, collections of primary source material, and text collections.

- **Integration of types of information:** Many creators choose to use the Internet to present sites that integrated information types in ways that would have been difficult using traditional publishing forms. For example, sites that included links to text, image and sound, sites that included images with inventories of objects or archives, and sites that included previously published works with original material.

- **Continuity and currency:** Creators could choose to continuously update and improve sites after the initial presentation. This had two effects, first it meant that creators could present information while their work was in process, second, creators could choose to continue to refine and enhance their sites even after the work had achieved an acceptable level of completion.

Category Two: Sites of scholarly interest

Many sites were not clearly scholarly in nature. However, because of their content, authorship, or type, these sites were of potential interest to the study and to individual scholars. These sites were not included in our analysis, but they are included in the final database.

Examples of these type of sites were; journal web pages that did not include full text, local histories, guides to historic parks and sites, and overviews of historic topics that did not include analysis or significant resource materials.

Category Three: Sites outside of the focus of the study

Some of the sites that were initially harvested lacked any meaningful content or concerned subjects outside the focus of this study.

Examples of this were, association sites that presented no resource material, journal web-pages on science or engineering topics, and sites that were hosted outside of Canada.

Analyses of Category One sites using the harvesting instrument.

Each Category One site in the harvesting database was described using a series of standardized elements derived from the Dublin Core. The analysis in this section examines essential elements and the information they provide concerning the nature of scholarly web publishing in Canada.

We have been cautious in our analysis and have focused on the illustrative nature of the data rather than drawing firm conclusions. This seemed to be a sensible course given the experimental and preliminary nature of the harvesting instrument.

It should be noted, that because of our specific interest in electronic journals, the 137 Category One sites were all separately reviewed so that we could identify the number of electronic journals. There were 26 electronic journals identified.

Types—nature, and genre

The application of the types – nature and genre – was problematic. Examination of the database showed that the student harvesters had difficulty consistently employing the terminology, and, to be fair, it is hard to see how any relatively untrained individual could use this terminology effectively. While this is disappointing because it limits the amount of information that we can derive from these elements, it does point out some important issues for applying the *type* element to scholarly web sites.

Inconsistencies arose from two aspects inherent in our use of type and would need to be addressed in any future projects.

Lack of correspondence to the types of material found in the database.

Many common types of sites, for example, bibliographies, portals, and databases, had no clear corresponding term in either the nature or genre lists. As a result, harvesters would use different terms to describe sites that were essentially of the same type.

Overlap among categories

The harvesters found it difficult to understand the relationship of the different categories. Most troublesome was the term "collection." Some students would use the term for any aggregation of information, but then fail to understand if they should add a term for text or image.

Ways to control this in future studies would be

- to use descriptive examples for guidance on how common types of sites should be classed.

- to develop a separate specialized database element that listed common scholarly web site types.

Creators

- 135 sites had a creator listed.
- 61 sites cited individual creators
- 14 sites cited collaborations of two or more individual named creators
- 60 sites cited creation by corporate bodies, for example editors, associations or groups, or projects with leaders.

Individual creators and corporate bodies each accounted for about half the sites. We had thought there would be more evidence of individuals using the web as a means of collaborating on work. But most collaborative work arose form formal groups, projects, or associations.

Metadata Status

- 137 sites had metadata status listed.
- 65 sites lacked metadata
- 72 sites had metadata

Harvesters were generous in their interpretation of what constituted metadata, nevertheless almost half the sites lacked metadata. This would make it difficult for other researchers to find and properly cite an electronic resource. This is a significant issue if web sites are to be recognized as substantial scholarly works.

Referee Status

- 137 sites
- 108 sites had some system of content review or evaluation
- 5, all of which were journals, used academic review
- the most common type or content control was direct authorial control—81 sites
- 22 sites utilized a selection committee. This was commonly used for journals: 15 journals used a selection committee

A common observation of web sources is that it is difficult for non-experts to evaluate the quality of information. The journals in our sample commonly used some means of review. Most other sites practised only the creator's usual control over content. While this is suitable for many kinds of sites, for example, databases, bibliographies, and primary sources, it does illustrate the importance of developing independent information assessment and evaluation skills in scholars and non-scholars alike.

Commentary

- 137 sites
- 116 sites had no provision for commentary

Print journals have long used letters to the editor as a means of integrating scholarly dialogue into the presentation of information. Web publishing offers the opportunity to extend this process to other kinds of sites. It was disappointing that we did not find more instances of provision for commentary.

Activity Status

- 137 sites
- 70 sites were active
- 44 sites were of unknown status
- 19 sites were inactive
- 4 sites were static

Despite the relative novelty of web publishing for many scholars, there was no widespread neglect of sites. Since our categorization process had selected for sites with significant content this result was understandable. Nevertheless it was heartening to see the active maintenance of so many sites.

Publisher (hosts)

- 134 sites
- 108 sites were hosted by Universities
- 13 sites were hosted by Government

These results were understandable given the place of work of many scholars. However, our harvesting methodology may have biased the sample.

Publisher (funders)

- 137 sites
- Funding sources for 92 sites were undetermined.
- Government bodies were the funding source in 24 sites, This was the most common type of

source cited.
- Universities were cited as a funding source in only 6 cases.

In many cases, we can assume that the hosting body was the source of funds. However, the harvesters only cited a source when it was formally acknowledged

Type (access)

- 137 sites
- 124 sites were recorded as having no access restrictions for at least some content
- 7 sites were fee-based for at least some content
- 9 sites were only available to a restricted community
- 22 of 26 journal sites were open access

These results could be an artefact of the search process that was biased in favour of open access university and government sites.

Archival Status

- 131 sites
- 117 were of unknown archiving status
- 8 sites were archived through electronic back files on the web.
- Of 21 journals for which data was recorded, one was archived at the National Library and 2 had back issues on the web. 18 journals were of unknown status.

Archiving was a neglected issue, especially archiving that would involve a third party such as the National Library. Scholars have not had to develop deliberate plans for archiving information in the past. Formally published print works are archived by National Libraries and by their presence in many personal and other library collections. There is a lack of well-developed models scholars can use to assure the archiving of Internet resources. This is clearly an area where more work and planning is needed.

Recommendations

The research team is well aware that the preliminary analysis presented above does not give the full picture of electronic scholarly publishing in Canada that we would have wished. We are confident that within the boundaries of our methodology, financial resources, and time constraints, we have done a good job of locating and describing the most important electronic scholarly publishing projects and completed sites in Canada. However, we would not wish to claim that we have found every significant resource produced by Canadian scholars in the social sciences and humanities, nor would we claim that we have provided all of the desirable information about even the clearly scholarly sites we catalogue.

It is a matter of no small significance that this effort of the Humanities and Social Sciences Federation of Canada in which we are proud to have played a part breaks new ground: in attending to the wide variety of electronic publications in which scholars in our disciplines are involved, in applying a standard descriptive scheme to such publications, in collecting them into an accessible database for consultation by Canadian and international scholars.

Thinking about the significance of what we have been doing in this part of our study, we have been impressed both by the potentially crucial importance for Canadian electronic scholarship of the database we have constructed, and by the necessity to use our whole study as an additional stage of trial implementation of a conceptual framework and methodology. We have the following recommendations for further work in this direction:

That the database we have created be maintained by HSSFC or some other body.

We were struck to find that some of the resources we had initially located had already disappeared a few months later; others had changed in various ways. There is little value to our database if it continues merely to represent the state of electronic scholarly publishing in Canada at the turn of the millennium, because even a few years later very little of what we have catalogued will be unchanged and many new sites will have sprung into existence. One particularly dynamic area is electronic journals, where a Web page that today simply lists the address of the editor may tomorrow index forthcoming issues and the day after that provide full text of articles. To follow these developments would not be expensive, but would require the regular commitment of time by at least one part-time employee. The database could become an important national resource for scholars in Canada and around the world if it were to be maintained. Without such maintenance it will serve the lesser purpose of providing a snapshot of a dynamic process – at a particularly crucial and formative moment, it is fair to concede, but

almost certainly a moment that will quickly fade into the past.

That tools be developed or identified to aid in maintaining the database.

Much of the work of maintaining the database could be automated if, for example, a Web-bot could be employed periodically to verify links and list changes to documents in comparison to a prior state. Such a tool would minimize human searching time quite dramatically. Another area in which automation might help is identification of multiple citations of essentially the same source. Clearly in both cases, a human eye is needed, but preliminary preparation of data by automatic means could considerably lessen the expense of database maintenance.

That the methodology for identification and inclusion of electronic resources be refined.

Our use of graduate students as surfers to locate materials for inclusion in the database has some disadvantages. Graduate students may be uncertain of the value, or even in some cases the nature, of materials beyond their field of expertise, and even within their field they have not necessarily developed the subject specialist's eye for quality or innovation. In addition, if this database project were to be continued as a national listing of electronic scholarly projects, it would be reasonable to expect that scholars would want their projects to be listed and would begin to submit them for listing, especially if this possibility were brought to their attention. We would recommend a steady-state process in which initial discovery of materials, whether by student surfers, Web-bots, or submission by author/publishers, would be followed by evaluation by a network of subject specialists before inclusion.

That consideration be given to incorporating a method of peer-review into the database.

While we are impressed by the volume of electronic publishing activity in the Canadian academy, we must also point out that our Category 1 (scholarly sites) contains in total very few entries in comparison, for example, to the volume of scholarly book publishing in Canada. This general reluctance to proceed to full engagement in publishing scholarly work in the new medium, we speculate, stems at least partly from the fact that mechanisms for career progress in the academy depend upon peer-reviewed publication. While on the one hand it is exciting for many that the Internet is not burdened with such inhibitory structures, on the other hand the absence of peer review may itself inhibit the migration of scholarly publication to the electronic medium. We are at a turning point in electronic scholarly publication in this country, a point when after an

experimental phase of investigation in which the question at issue was really whether or not the electronic medium was suitable for scholarly publication at all, scholars are tempering their enthusiasm with concern that, suitable as they are, electronic publications do not convince Chairs and Deans to grant tenure or promotion. We would recommend the investigation of the possibility of a two-tiered model of peer review in conjunction with the database: an initial stage in which a resource is accepted (or not) for inclusion into the database, and a qualitative review stage.

That the HSSFC adopt means to encourage proper identification and archiving of electronic scholarly publications.

We are struck by how many of the electronic projects and sites we have catalogued do not provide even the minimal data required to complete all fields of our modified Dublin Core data categories, and by how few of them announce any strategy for archiving at all.

Clearly, there may be some minor modifications to our fields that would be useful, but the modified version of Dublin Core "cataloguing in publication" descriptive terminology we have been using strikes us as being a good basis for recommendations about data that scholars should be including on their sites. Even with our additions, Dublin Core is not as full a description as might be achieved with a full MARC-type record or a scrupulously completed TEI-header, but it is a good compromise between those very full cataloguing types and the practical extent of the inclination of self-publishing scholars to provide information of this kind. If all of the sites we visited had provided this kind of information, our task, of course, would have been much easier. More crucially, our database would be more complete.

We are also concerned about the evanescence of scholarly work in this new medium if archiving is not attended to. Of course, sites that did not list archival strategies may have had such strategies without announcing them given the general lack of inclination to provide metadata. But our fear is that many sites that did not announce archival strategies did not have them, and in a world where the individual scholar may be both author and publisher of on-line materials, that single person is also the librarian and archivist who maintains the security of the materials he or she has published forth to the world. Although it is possible to imagine a future in which the National Library or some other body could maintain a depository relationship to certain categories of Web publication, it is surely necessary in the absence of such a structure to admonish individuals and groups who are boldly engaging in electronic scholarly publication to consider posterity – which in this dynamic medium may include scholars next year who are seeking data they saw this year

Appendix A – Controlled Vocabulary Tables

Table 1 - Format Controlled Vocabulary

Application/msword
Application/pdf
Application/richtext
Application/zip
Audio/aiff
Audio/avi
Audio/mpeg
Audio/quicktime
Audio/realaudio
Audio/wav
Image/bmp
Image/gif
Image/jpeg
Image/png
Image/tiff
Text/html
Text/sgml
Text/text
Text/xml
Video/asf
Video/avi
Video/mpeg
Video/quicktime
Video/realvideo

Table 2 – ISO 639-2 Language Codes

(reproduced from http://sunrise.eng.monash.edu.au/sunrise/html4/TUTORIAL/ISO6392.HTM)

ISO 639-2 (3 letter code)	ISO 639 (2 letter code)	Language name
abk	ab	Abkhazian
ace		Achinese
ach		Acoli
ada		Adangme
aar	aa	Afar
afh		Afrihili

afr	af	Afrikaans
afa		Afro-Asiatic(Other)
aka		Akan
akk		Akkadian
alb/sqi	sq	Albanian
ale		Aleut
alg		Algonquianlanguages
tut		Altaic(Other)
amh	am	Amharic
apa		Apachelanguages
ara	ar	Arabic
arc		Aramaic
arp		Arapaho
arn		Araucanian
arw		Arawak
arm/hye	hy	Armenian
art		Artificial(Other)
asm	as	Assamese
ath		Athapascanlanguages
map		Austronesian(Other)
ava		Avaric
ave		Avestan
awa		Awadhi
aym	ay	Aymara
aze	az	Azerbaijani
nah		Aztec
ban		Balinese
bat		Baltic(Other)
bal		Baluchi
bam		Bambara
bai		Bamilekelanguages
bad		Banda
bnt		Bantu(Other)
bas		Basa
bak	ba	Bashkir
baq/eus	eu	Basque

bej		Beja
bem		Bemba
ben	bn	Bengali
ber		Berber(Other)
bho		Bhojpuri
bih	bh	Bihari
bik		Bikol
bin		Bini
bis	bi	Bislama
bra		Braj
bre	be	Breton
bug		Buginese
bul	bg	Bulgarian
bua		Buriat
bur/mya	my	Burmese
bel	be	Byelorussian
cad		Caddo
car		Carib
cat	ca	Catalan
cau		Caucasian(Other)
ceb		Cebuano
cel		Celtic(Other)
cai		CentralAmericanIndian(Other)
chg		Chagatai
cha		Chamorro
che		Chechen
chr		Cherokee
chy		Cheyenne
chb		Chibcha
chi/zho	zh	Chinese
chn		Chinookjargon
cho		Choctaw
chu		ChurchSlavic
chv		Chuvash
cop		Coptic
cor		Cornish

cos	co	Corsican
cre		Cree
mus		Creek
crp		CreolesandPidgins(Other)
cpe (Other)		CreolesandPidgins,English-based
cpf (Other)		CreolesandPidgins,French-based
cpp (Other)		CreolesandPidgins,Portuguese-based
cus		Cushitic(Other)
	hr	Croatian
ces/cze	cs	Czech
dak		Dakota
dan	da	Danish
del		Delaware
din		Dinka
div		Divehi
doi		Dogri
dra		Dravidian(Other)
dua		Duala
dut/nla	nl	Dutch
dum		Dutch,Middle(ca.1050-1350)
dyu		Dyula
dzo	dz	Dzongkha
efi		Efik
egy		Egyptian(Ancient)
eka		Ekajuk
elx		Elamite
eng	en	English
enm		English,Middle(ca.1100-1500)
ang		English,Old(ca.450-1100)
esk		Eskimo(Other)
epo	eo	Esperanto
est	et	Estonian
ewe		Ewe

ewo		Ewondo
fan		Fang
fat		Fanti
fao	fo	Faroese
fij	fj	Fijian
fin	fi	Finnish
fiu		Finno-Ugrian(Other)
fon		Fon
fra/fre	fr	French
frm		French,Middle(ca.1400-1600)
fro		French,Old(842-ca.1400)
fry	fy	Frisian
ful		Fulah
gaa		Ga
gae/gdh		Gaelic(Scots)
glg	gl	Gallegan
lug		Ganda
gay		Gayo
gez		Geez
geo/kat	ka	Georgian
deu/ger	de	German
gmh		German,MiddleHigh(ca.1050-1500)
goh		German,OldHigh(ca.750-1050)
gem		Germanic(Other)
gil		Gilbertese
gon		Gondi
got		Gothic
grb		Grebo
grc		Greek,Ancient(to1453)
ell/gre	el	Greek,Modern(1453-)
kal	kl	Greenlandic
grn	gn	Guarani
guj	gu	Gujarati
hai		Haida
hau	ha	Hausa
haw		Hawaiian

heb	he	Hebrew
her		Herero
hil		Hiligaynon
him		Himachali
hin	hi	Hindi
hmo		HiriMotu
hun	hu	Hungarian
hup		Hupa
iba		Iban
ice/isl	is	Icelandic
ibo		Igbo
ijo		Ijo
ilo		Iloko
inc		Indic(Other)
ine		Indo-European(Other)
ind	id	Indonesian
ina	ia	Interlingua(InternationalAuxiliary languageAssociation)
ine	-	Interlingue
iku	iu	Inuktitut
ipk	ik	Inupiak
ira		Iranian(Other)
gai/iri	ga	Irish
sga		Irish,Old(to900)
mga		Irish,Middle(900-1200)
iro		Iroquoianlanguages
ita	it	Italian
jpn	ja	Japanese
jav/jaw	jv/jw	Javanese
jrb		Judeo-Arabic
jpr		Judeo-Persian
kab		Kabyle
kac		Kachin
kam		Kamba
kan	kn	Kannada
kau		Kanuri

kaa		Kara-Kalpak
kar		Karen
kas	ks	Kashmiri
kaw		Kawi
kaz	kk	Kazakh
kha		Khasi
khm	km	Khmer
khi		Khoisan(Other)
kho		Khotanese
kik		Kikuyu
kin	rw	Kinyarwanda
kir	ky	Kirghiz
kom		Komi
kon		Kongo
kok		Konkani
kor	ko	Korean
kpe		Kpelle
kro		Kru
kua		Kuanyama
kum		Kumyk
kur	ku	Kurdish
kru		Kurukh
kus		Kusaie
kut		Kutenai
lad		Ladino
lah		Lahnda
lam		Lamba
oci	oc	Langued'Oc(post1500)
lao	lo	Lao
lat	la	Latin
lav	lv	Latvian
ltz		Letzeburgesch
lez		Lezghian
lin	ln	Lingala
lit	lt	Lithuanian
loz		Lozi

lub		Luba-Katanga
lui		Luiseno
lun		Lunda
luo		Luo(KenyaandTanzania)
mac/mak	mk	Macedonian
mad		Madurese
mag		Magahi
mai		Maithili
mak		Makasar
mlg	mg	Malagasy
may/msa	ms	Malay
mal		Malayalam
mlt	ml	Maltese
man		Mandingo
mni		Manipuri
mno		Manobolanguages
max		Manx
mao/mri	mi	Maori
mar	mr	Marathi
chm		Mari
mah		Marshall
mwr		Marwari
mas		Masai
myn		Mayanlanguages
men		Mende
mic		Micmac
min		Minangkabau
mis		Miscellaneous(Other)
moh		Mohawk
mol	mo	Moldavian
mkh		Mon-Kmer(Other)
lol		Mongo
mon	mn	Mongolian
mos		Mossi
mul		Multiplelanguages
mun		Mundalanguages

nau	na	Nauru
nav		Navajo
nde		Ndebele,North
nbl		Ndebele,South
ndo		Ndongo
nep	ne	Nepali
new		Newari
nic		Niger-Kordofanian(Other)
ssa		Nilo-Saharan(Other)
niu		Niuean
non		Norse,Old
nai		NorthAmericanIndian(Other)
nor	no	Norwegian
nno		Norwegian(Nynorsk)
nub		Nubianlanguages
nym		Nyamwezi
nya		Nyanja
nyn		Nyankole
nyo		Nyoro
nzi		Nzima
oji		Ojibwa
ori	or	Oriya
orm	om	Oromo
osa		Osage
oss		Ossetic
oto		Otomianlanguages
pal		Pahlavi
pau		Palauan
pli		Pali
pam		Pampanga
pag		Pangasinan
pan	pa	Panjabi
pap		Papiamento
paa		Papuan-Australian(Other)
fas/per	fa	Persian
peo		Persian,Old(ca600-400B.C.)

phn		Phoenician
pol	pl	Polish
pon		Ponape
por	pt	Portuguese
pra		Prakritlanguages
pro		Provencal,Old(to1500)
pus	ps	Pushto
que	qu	Quechua
roh	rm	Rhaeto-Romance
raj		Rajasthani
rar		Rarotongan
roa		Romance(Other)
ron/rum	ro	Romanian
rom		Romany
run	rn	Rundi
rus	ru	Russian
sal		Salishanlanguages
sam		SamaritanAramaic
smi		Samilanguages
smo	sm	Samoan
sad		Sandawe
sag	sg	Sango
san	sa	Sanskrit
srd		Sardinian
sco		Scots
sel		Selkup
sem		Semitic(Other)
	sr	Serbian
scr	sh	Serbo-Croatian
srr		Serer
shn		Shan
sna	sn	Shona
sid		Sidamo
bla		Siksika
snd	sd	Sindhi
sin	si	Singhalese

sit	-	Sino-Tibetan(Other)
sio		Siouanlanguages
sla		Slavic(Other)
ssw	ss	Siswant
slk/slo	sk	Slovak
slv	sl	Slovenian
sog		Sogdian
som	so	Somali
son		Songhai
wen		Sorbianlanguages
nso		Sotho,Northern
sot	st	Sotho,Southern
sai		SouthAmericanIndian(Other)
esl/spa	es	Spanish
suk		Sukuma
sux		Sumerian
sun	su	Sudanese
sus		Susu
swa	sw	Swahili
ssw		Swazi
sve/swe	sv	Swedish
syr		Syriac
tgl	tl	Tagalog
tah		Tahitian
tgk	tg	Tajik
tmh		Tamashek
tam	ta	Tamil
tat	tt	Tatar
tel	te	Telugu
ter		Tereno
tha	th	Thai
bod/tib	bo	Tibetan
tig		Tigre
tir	ti	Tigrinya
tem		Timne
tiv		Tivi

tli		Tlingit
tog	to	Tonga(Nyasa)
ton		Tonga(TongaIslands)
tru		Truk
tsi		Tsimshian
tso	ts	Tsonga
tsn	tn	Tswana
tum		Tumbuka
tur	tr	Turkish
ota		Turkish,Ottoman(1500-1928)
tuk	tk	Turkmen
tyv		Tuvinian
twi	tw	Twi
uga		Ugaritic
uig	ug	Uighur
ukr	uk	Ukrainian
umb		Umbundu
und		Undetermined
urd	ur	Urdu
uzb	uz	Uzbek
vai		Vai
ven		Venda
vie	vi	Vietnamese
vol	vo	Volapük
vot		Votic
wak		Wakashanlanguages
wal		Walamo
war		Waray
was		Washo
cym/wel	cy	Welsh
wol	wo	Wolof
xho	xh	Xhosa
sah		Yakut
yao		Yao
yap		Yap
yid	yi	Yiddish

yor	yo	Yoruba
zap		Zapotec
zen		Zenaga
zha	za	Zhuang
zul	zu	Zulu
zun		Zuni

Appendix B - DCT1 Dublin Core Types 1 (1999-08-05)

Type was used to categorize the nature or genre of the content of the resource. Recommended best practice was to select a value from a controlled vocabulary. For qualified Dublin Core, the list may be identified using the scheme qualification. Resource Type may be repeated as necessary to include different categories. The following list (referred to as DCT1) was offered as the Dublin Core default list of resource types.

- collection

- dataset

- event

- image

- interactive resource

- model

- party

- physical object

- place

- service

- software

- sound

- text

These can be defined and used as follows:

collection

an aggregation of items. The term collection means that the resource was described as a group; its parts may be separately described and navigated.

dataset

structured information encoded in lists, tables, databases, etc., which will normally be in a format available for direct machine processing. For example - spreadsheets, databases, GIS data, midi data. Note that unstructured numbers and words will normally be considered to be type *text*.

event

a non-persistent, time-based occurence. Metadata for an event provides descriptive information that was the basis for discovery of the purpose, location, duration, responsible agents, and links to related events and resources. The resource of type *event* may not be retrievable if the described instantiation has expired or was yet to occur. Examples - exhibition, web-cast, conference, workshop, open-day, performance, battle, trial, wedding, tea-party, conflagration.

image

the content was primarily symbolic visual representation other than text. For example - images and photographs of physical objects, paintings, prints, drawings, other images and graphics, animations and moving pictures, film, diagrams, maps, musical notation. Note that image may include both electronic and physical representations.

interactive resource

a resource which requires interaction from the user to be understood, executed, or experienced. For example - forms on web pages, applets, multimedia learning objects, chat services, virtual reality.

model

an abstraction of the real thing, i.e. some generalisation and interpretation. Models could be considered a symbolic representation. Examples include performance models, cost models, mechanical models, etc.

party

a person, organization, cultural group, or institution.

physical object

a non-human object or substance. For example - a computer, the great pyramid, a sculpture, wheat. Note

that digital representations of, or surrogates for, these things should use *image*, *text* or one of the other types.

place

a geographic area.

service

a system that provides one or more functions of value to the end-user. Examples include: a photocopying service, a banking service, an authentication service, interlibrary loans, a Z39.50 or Web server.

software

a computer program in source or compiled form which may be available for installation non-transiently on another machine. For software which exists only to create an interactive environment, use *interactive* instead.

sound

a resource whose content was primarily audio or intended to be realized in audio. For example - music, speech, recorded sounds. This category includes musical notation, including score, which was unrealized in sound.

text

a resource whose content was primarily words for reading. For example - books, letters, dissertations, poems, newspapers, articles, archives of mailing lists. Note that facsimiles or images of texts were still of the genre text.

Appendix C - Glossary

Databank

A (usually) large collection of data organized especially for rapid search and retrieval by a computer. Also known as a database.

Data-gathering Tool

A software program developed to facilitate the gathering of information within the harvesting project.

Digital Library

An "electronic" or "virutal" library containing such digital objects as electronic text, sound files, and images and often providing access to electronic information resources and databases. It is usually assumed to be accessible via the Internet, though not necessarily to everyone.

Dublin Core Metadata Initiative

An attempt to develop a common core of semantics for the description of electronic resources. Its restricted set of subject classifications is intended to be simple enough so that authors of on-line documents could implement its use themselves. The web-site for the Dublinc Core Metadata Initiative is located at http://www.purl.org/DC.

Harvesting

The process of scanning the Web in search of information and electronic resources meeting chosen specifications or search strategies. It may involve submitting queries to on-line search engines or using "web spiders" or "robots" -- software programs that sift through data, making their own decisions regarding what to retrieve. The work of these virtual servants is greatly facilitated by the presence of "meta data"

HTML Headers

Non-displaying information embedded at the top of an HTML page.

Instrument

The tool that was developed within the harvesting project to facilitate gathering and tabulation of electronic resources, particularly on the Web.

ISO 639-2 Standard

An international standard for indicating the language of a given document.

Metadata

Various types of structured data about data, including library catalogs, directories, and subject indexes. In the context of World Wide Web, metadata is often found embedded in the non-displaying "header" of an HTML page. Using "meta tags," it may describe the content of the on-line document, provide the author's name, or list keywords or other information pertinent to the page. Some of these meta tags are scanned and indexed automatically by search engines such as Alta Vista and Excite. In the future, the importance of metadata will increase, as standards such as the Dublin Core subject headings become more fully implemented.

Metasearch Engines

While search engines scan web pages for information, metasearch engines search the search engines. A more comprehensive search is accomplished as a result since metasearch engines are able to consolidate the search (saving time for the user) and optimize the search strategies by taking advantage of more complex search strategies of which the user may be unaware.

Perl (Practical Extraction and Report Language)

An interpreted programming language developed by Larry Wall. Implementations of Perl are available on virtually all computer platforms. It is particularly noted for its ability to handle text in sophisticated ways.

Pre-test

A trial run intended to test the instruments and methodology of the harvesting project.

SCHOLARLY
Electronic Publishing

Opinion Poll

Electronic Publishing in the Humanities and Social Sciences:

A Report to the Humanities and Social Sciences Federation of Canada on Survey findings

Keith Archer

Introduction

As part of the study of electronic publishing in the Social Sciences and Humanities, sponsored by the Humanities and Social Sciences Federation of Canada, a survey questionnaire was administered by telephone to a sample of 696 faculty members at Canadian universities. A methodological note on the survey is contained in Appendix A of this report. This report provides an analysis of the experiences with electronic publication of faculty members at Canadian Universities, whose academic appointment is in the Humanities and Social Sciences disciplines.

The overall study was a joint initiative of researchers at the University of Calgary, the University of New Brunswick, and the Faculté St. Jean at the University of Alberta. The data were collected by Accord Research at the University of Calgary. A sample this size produces a margin of error of +/- 3.8% at the 95% confidence interval.

Case Studies

Resource Harvesting

Return to home page

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Demographic Characteristics

The survey was conducted through a method of 'cluster sampling', in which a number of universities were selected as being primarily English-speaking and primarily French-speaking, and interviews conducted in either of the official languages. The sample was stratified such that approximately one-quarter of the interviews would be conducted in French, and three-quarters in English.

Table 1 presents the demographic characteristics of the sample. The intended linguistic stratification was achieved, with 74.4% of the interviews being conducted in English, and 25.6% in French. Other demographic features include a distribution of gender of 28.4% female and 71.6% male. Examining the data by academic rank reveals that 23.3% of respondents hold the position of Assistant Professor, 28.3% Associate Professor and 41.7% Full Professor. In addition, the sample contains 3.6% of respondents holding the rank of sessional instructor, and 3.0% holding some other academic rank. The survey includes data on the university at which the respondents currently hold their academic appointment, including 8.0% at UBC, 16.8% at the University of Saskatchewan, 19.4% at York University, 8.5% at Laurentian University, 11.4% at Dalhousie University, 9.9% at University of New Brunswick, 21.0% at Laval University, and 5.0% at the University of Sherbrooke.

Table 1

Demographic Characteristics

Characteristic	Percent

Language of interview

English	74.4
French	25.6
N	(696)

Gender

Female	28.4
Male	71.6
N	(696)

Academic Rank

Assistant Professor	23.3
Associate Professor	28.3
Full Professor	41.7
Sessional Instructor	3.6
Other	3.0
N	(690)

University

University of British Columbia	8.0

University of Saskatchewan	16.8
York University	19.4
Laurentian University	8.5
Dalhousie University	11.4
University of New Brunswick	9.9
Laval University	21.0
University of Sherbrooke	5.0
N	(696)

Academic Discipline

Social Sciences - Anthropology - Archaeology - Economics - Geography - History - History and Politics - Industrial Relations - Information and Communication - Political Science - Social Sciences - Social Services - Sociology - Sociology and Anthropology	66.1

• Psychology	
Humanities • Arts • Arts and Communication • Asian Studies • Classics • Culture and Language Studies • English • French Studies • German • Humanities • Languages/Languages and Linguistics • Literature • Native Studies • Philosophy • Religious Studies • Russian • Theology • Women and Gender Studies	33.9
N	(657)

Country of Study for PhD

Canada	63.3
United States	20.5
Other	13.2
N	(605)

Two additional demographic variables are included in this analysis (although others are available in the main dataset). One of these is the academic discipline of the faculty member. We are interested in testing the degree to which attitudes towards, or experiences with, electronic publishing are affected by the faculty member's academic discipline. We are particularly interested in whether the attitudes and experiences of faculty members from the Social Sciences differ from those in the Humanities. There are several ways in which respondents academic discipline could be determined. Respondents were asked about the discipline of their PhD, their faculty of appointment and their department. The faculty of appointment is problematic because with a number of faculties (e.g., Arts and Sciences, Arts/Fine Arts, Humanities and Social Sciences), it is difficult to determine in which of the categories (Social Sciences or Humanities) the faculty member belongs. Using either the academic department, or the discipline of the PhD, provides sufficient information to make decisions about discipline of study.

For the present analysis, the academic department was used to measure the discipline of the faculty member. Table 1 indicates that of the faculty members providing information on discipline, 66.1% are from the Social Sciences and 33.9% are from the Humanities. Of course, not all universities place academic departments in the same faculties, or view them as part of the same disciplines. In the present analysis, we have listed the academic department under the disciplinary heading of Social Sciences or Humanities, based on what is considered a reasonable placing of the disciplines.

The other demographic variable is the country in which the respondent completed the PhD degree. The hypothesis we wish to explore is whether respondents who have studied in different countries have different affinities for using electronic resources for scholarly purposes. Table 1 indicates that 63.3% of respondents earned their degree in Canada, 20.5% in the United States, and 13.2% in some other country.

Use of Electronic Resources for Research Purposes

Respondents were asked about the frequency of their use of electronic resources for research purposes, the results of which are reported in Table 2. These data reveal that a significant proportion of faculty members in the Humanities and Social Sciences use electronic resources for their research purposes, while a substantial proportion of researchers also continue not to use such resources. In addition, usage varies according to the particular electronic resource under consideration.

Table 2

Question: Do you ever use the following electronic resources for research purposes?

Type of Electronic Resource	Yes	No	Not Sure	N
On-line scholarly journals	50.9	48.7	0.4	(696)
On-line government resources	51.1	48.4	0.4	(696)
On-line newspapers	39.7	60.1	0.3	(696)
On-line archival materials	40.7	59.3	--	(696)
Other on-line resources	67.0	33.0	--	(696)

For example, slightly more than half of all respondents have used on-line scholarly journals (50.9%), and a similar percentage have used on-line government resources (51.1%) in their research. A smaller, but still substantial, proportion have used on-line newspapers (39.7%), and on-line archival materials (40.7%). Approximately two-thirds of respondents have used some other variety of on-line resources for their scholarship. Thus, the data suggest patterns of usage among substantial proportions of researchers in the Social Sciences and Humanities, albeit with another substantial proportion that continue not to use electronic resources for their scholarship.

Changing Usage Patterns of Electronic Resources

Respondents were asked whether their usage patterns have changed in the past five years, with respect to the use of electronic resources. This question was asked only of those who indicated they had used a particular type of resource, as reported in Table 2. The responses to the question about changing patterns of usage appear in Table 3.

Table 3

Question: Has your use of this resource increased, decreased or stayed the same over the past 5 years?

Type of Electronic Resource	Increased	Decreased	No Change	N/A*	N
On-line scholarly journals	43.7	0.6	6.8	49.0	(696)
On-line government resources	43.7	0.6	7.3	48.4	(696)
On-line newspapers	33.3	0.3	6.3	60.1	(696)
On-line archival materials	34.2	0.3	6.2	59.3	(696)

N/A (Not Applicable) indicates that respondent has never used this electronic resource.

There are unmistakable patterns of increase in the usage of electronic resources among faculty members in the Social Sciences and Humanities. For example, the use of on-line scholarly journals has increased for 43.7% of respondents, decreased among 0.6%, and stayed the same for 6.8%. The remainder (49.0%), have not used electronic resources, and hence their usage has not changed. However, if one removes this latter group from the analysis, and focuses instead only on the faculty members who have used this resources, the findings are even more stark. In this case, 85.6% of those who have use on-line scholarly journals have seen their use increase in the past 5 years, whereas it has decreased for only 1.1%. We find similar trends when the analysis focuses on those who have used on-line government resources, newspapers or archival materials. In these instances, the proportion of users who have seen

their usage of electronic resources increase in the past five years is 84.7% for government resources, 83.5% for newspapers, and 84.1% for archival material. Thus, among those faculty who have used these resources, there is a clear trend in upward usage.

This trend was confirmed when faculty were asked, without specific reference to a particular on-line resource, whether their usage has increased over the past five years. Table 4 indicates that 82.5% have increased compared to less than one percent indicating a decrease in use. Further, there is evidence that large proportions of faculty members are willing not only to use electronic resources, but to cite them in their published scholarship. 80.3 percent of respondents indicated a willingness to cite electronic resources in a print-based journal article or book. However, the remainder of faculty tended to be opposed (19.5%), rather than uncertain (0.1%) of their willingness to cite electronic resources.

Table 4

Question: Overall, would you say your use of on-line resources has in the past 5 years, increased, decreased, or stayed about the same?

	Percent
Increased	82.5
Decreased	0.6
Stayed About the same	17.0
N	(696)

Question: Would you cite electronic resources for a print article or book?

	Percent
Yes	80.3

No	19.5
Don't Know	0.1
N	(696)

Electronic resources in teaching and publishing

Whereas over 4 in 5 respondents indicated a willingness to use electronic resources for their scholarship, a much smaller percentage (55.7%) said that they have integrated such resources into their teaching, compared to 43.7% who have not (see Table 5). Furthermore, there appears to be even greater reservations about publishing one's own scholarship in electronic outlets, including refereed electronic outlets. Only 10.6% of respondents indicated that they have published, and a further 2.0% attempted to publish their scholarship in a refereed electronic outlet. The vast majority (87.4%), have neither published in an electronic outlet, nor attempted to do so. Clearly, there is a difference for faculty members between using material from electronic sources for their research and teaching, on the one hand, and having their own scholarship published in such a way.

Table 5

Question: Have you integrated electronic resources into any of the courses that you teach?

	Percent
Yes	55.7
No	43.7
Not sure	0.6
N	(696)

Question: In the past five years, have you published or attempted to publish any item of scholarship in a refereed electronic outlet?

	Percent

Published	10.6
Attempted to publish	2.0
Neither	87.4
N	(696)

Why not use electronic resources?

To understand this dichotomy, respondents were asked to identify the reasons they would not use electronic resources. For this item, respondents were not provided with a 'cue' on what those reasons might be. Instead, they were left to identify these reasons on their own. Our interviewers were able to record up to 5 reasons, but none of the respondents mentioned more than 3 reasons. These are presented in Table 6, which indicates the number of people who gave each response for each of the 3 mentions, the total number providing each response, and the percentage of the sample that provided each response.

Table 6

Question: What are some of the reasons why you would not use electronic resources?

	1st mention	2nd mention	3rd mention	N mentions	% mentions
Hard to find	53	18	3	74	10.6
Cost is too high	22	5	2	29	4.2
Not credible/not sure of worth	196	43	7	246	35.3
Not familiar with technology	27	23	2	52	7.5
Don't have hardware	15	11	3	29	4.2
None/No reason not to use	140	5	0	145	20.8
Don't know	14	0	0	14	2.0
Other	229	74	11	314	45.1

By far the greatest concern with electronic publishing is concern about the credibility of the source. Fully 35.3% of respondents mentioned credibility, or their uncertainty with the worth of an electronic publication as

a reason not to use it. This suggests that the veritable explosion of material on the web, and the rapid proliferation of unrefereed material, has served to taint all web-based material, or at least to raise significant concerns in the minds of the scholarly community in the Humanities and Social Sciences about the perceived worth of all such publications. The second set of concerns with using electronic resources relates to the possession of skills necessary to use the material effectively. For example, 10.6% of respondents indicated that electronic resources are hard to find, and another 7.5% indicated they are unfamiliar with the technology necessary to find material efficiently. The third general concern is with having the resources required to access electronic materials on the Internet or in other electronic forms. 4.2% of respondents indicated that the cost of accessing such materials is too high, and another 4.2% indicated that they do not possess the hardware necessary to use electronic resources. We suspect these two response categories are indicating similar responses about the inadequacy of computer hardware.

More barriers to electronic publishing

In an attempt to further assess the reasons for faculty members resistance to using electronic resources for the publication of their own scholarship, we provided a series of four statements, to which respondents could indicate a feeling from strongly agree to strongly disagree. The first of these questions stated that, "There is no difference between material published electronically and material published non-electronically". Respondents disagreed with this statement by a margin of 2 to 1, with 57.5% disagreeing or strongly disagreeing, and 28.8% agreeing or strongly agreeing. Clearly, faculty members in the Social Sciences and Humanities feel there is a difference in quality between these two types of publication.

Table 7

Question	Strongly Agree	Agree	Neither Agree Nor Disagree	Disagree	Strongly Disagree	N
There is no difference in quality between material published electronically and material published non-electronically	4.6	24.2	13.7	43.0	14.5	(612)

Peer review of electronic publishing ensures that its quality is similar to that of non-electronic publishing	10.2	49.4	16.7	19.3	4.4	(540)
A problem with electronic publishing is to ensure its long-term accessibility through proper archiving	24.1	50.3	9.1	14.4	2.1	(618)
At the moment, publishing in non-electronic outlets is more credible than						
publishing in electronic outlets	28.0	56.5	3.3	10.6	1.6	(671)

One obvious way of reducing this concern about the differences in quality is to adopt mechanisms of peer review similar to those used in quality scholarly publications. To guage opinion on this matter, respondents were given the following statement, "Peer review of electronic publishing ensures that its quality is similar to that of non-electronic publishing". There was overwhelming support for this view, by a factor of almost 3:1. In addition, 59.6% of respondents agreed or strongly agreed that peer review

of electronic publishing ensures its quality, compared to 23.7% who disagreed or strongly disagreed.

An even more significant level of agreement can be discerned on the issue of the importance of ensuring long-term accessibility of electronically published materials. For example, 74.4% of respondents agreed or strongly agreed with the statement "A problem with electronic publishing is to ensure its long-term accessibility through proper archiving". In contrast, only 16.5% disagreed or strongly disagreed with this statement. Faculty members, particularly in the social sciences and humanities disciplines, rely heavily on the collection of research literature that has arisen over a long period of time. Concern that electronic publication of research results may jeopardize the long-term availability of materials has a high impact on perceptions of the usefulness of electronic publishing.

All of these views serve to heighten the importance of credibility, a point reinforced with the fourth of the statements presented to respondents. When given the statement, "At the moment, publishing in non-electronic outlets is more credible than publishing in electronic outlets," 84.5% of respondents agreed or strongly agreed, compared to only 12.2% who disagreed or strongly disagreed. The credibility factor – disaggregated into issues of long-term availability and peer review – coupled with issues of technical know-how and technological access, continue to have a significant impact on the use of electronic research resources in the social sciences and humanities.

Pre-publication web sites

One of the advantages of electronic publication in some areas of research is the speed with which research results may be communicated to the scholarly community. One of the mechanisms used to accomplish this, particularly in the areas of Science, Technology and Medical (STM) research, is through pre-publication sites. This practice consists of researchers publishing their research materials, often in an un-reviewed, or pre-reviewed form, onto a web-site. Researchers engaging in this practice typically view it as not limiting their ability to submit the research article to a peer-reviewed journal for publication.

Table 8 presents data on the use of pre-publication web-sites for researchers in the Social Sciences and Humanities. When asked whether they had ever made their scholarship available electronically through a pre-publication web-site, a minority of respondents (22.4%) indicated that they had done so, compared to 77.6% who had not. However, like some of the other data seen previously, researchers were more likely to engage in this activity in obtaining scholarship from others than doing so for their own scholarship. For example, 41.1% of respondents indicated that they had obtained other scholarship from a pre-publication site, compared to 58.6% who had not.

Table 8

Question: Have you ever made your scholarship available electronically through a pre-publication web-site?

	Percent
Yes	22.4
No	77.6
N	(696)

Question: Do you obtain scholarship available electronically through pre-publication web-sites?

	Percent
Yes	41.1
No	58.6
Don't know	0.3
N	(696)

Computer infrastructure for electronic publishing

An obvious pre-requisite to the effective use of electronic research resources is the computer infrastructure with which to access materials and computer resources, and technical know-how for publication of one's own scholarship. A closely related issue for faculty members is the level of university support to acquire the hardware and the know-how required for electronic publication. Respondents were asked to assess these resource issues, the responses to which are in Table 9.

Table 9

Question	Inadequate	Barely Adequate	Adequate	More than Adequate	DK	N
How would you rate the adequacy of the computer infrastructure available to you to access on-line resources?	8.9	15.5	45.0	28.2	2.4	(696)
How would you rate the adequacy of the computer infrastructure available to you to publish your own scholarship on-line?	18.0	12.6	31.2	8.6	29.6	(696)
How would you rate the adequacy of the technical support provided by your university for accessing electronic resources?	16.1	17.5	45.7	16.5	4.2	(696)

The highest level of satisfaction is with the adequacy of computer infrastructure to access electronic materials. For example, 73.2% of respondents indicate that their computer infrastructure is either adequate or more than adequate to handle the task, compared to 24.4% who feel that their computer infrastructure is either barely adequate or inadequate. However, before jumping to the conclusion that

electronic resources are adequate because respondents say so by a ratio of 3:1, it is important to frame these responses within the set of expectations one has for an appropriate level of computer infrastructure. It is reasonable to expect that at a modern university in Canada, access to appropriate computer infrastructure to use electronic materials should be a normal expectation of employment. In this context, the finding that almost one-quarter of faculty members in the Social Sciences and Humanities feel their computer infrastructure is either inadequate or barely adequate simply to access on-line resources is a serious shortcoming. It would not be reasonable to expect such faculty members to be enthusiastic in adopting electronic publishing. An analogy may be to ask such faculty members to conduct library research, and then to deny them a library card.

Whereas there are concerns about the adequacy of computer infrastructure for reading on-line material, there are much more serious shortcomings with the infrastructure for electronic publishing. When asked about the adequacy of computer infrastructure to publish their own scholarship, almost one-third (29.6%) of respondents indicated they don't know, suggesting this group has never considered the possibility of doing so. Of the remainder, slightly less than two in five (39.8%) feel their infrastructure is either adequate to the task or more than adequate, compared to 30.6% who feel their infrastructure is barely adequate or inadequate. Thus, the "potential clientele" for publishing scholarship electronically in the Social Sciences and Humanities appears to be only about 40% of faculty members, clearly a limiting factor to the spread of this method of publication.

Finally, on the issue of the adequacy of technical support on campus for accessing electronic resources, 62.2% feel the support is adequate or more than adequate, compared to 33.6% who feel it is inadequate or barely adequate. Not surprisingly, the use of electronic resources for research purposes will be significantly more likely among the former than the latter. Thus, for many faculty members, the limiting factor not only is hardware, but also technical assistance and know-how.

Perceptions of the Future of Electronic Publishing

Respondents were invited to speculate on the future of electronic publishing in the Social Sciences and Humanities. They were provided a list of types of publication outlets and asked whether they felt that electronic publishing in these areas would increase or decrease in the future. (see Table 10). The main contrasts in this regard are views about the publication of books, on one hand, and other types of publication, especially scholarly journals and government resources on the other. On the question of the future of electronic publishing of books, respondents were almost evenly split between those who felt they would be more widely available (47.7%) versus those who thought things would stay about the same as at present (44.1%). A very small percentage (5.2%) thought books would be less widely available in the future.

Table 10

Question: Do you think each of the following will become more widely used in electronic form in the future, less widely used than today, or stay about the same?

Resource	More Widely Available	About the Same	Less Widely Available	DK	N
Books	47.7	44.1	5.2	3.0	(696)
Scholarly journals	87.6	7.6	2.9	1.9	(696)
Non-scholarly journals	73.7	13.5	2.9	9.9	(696)
Newspapers	71.8	22.3	2.4	3.4	(696)
Primary materials	71.3	18.1	2.3	8.3	(696)
Government resources	87.6	5.5	1.3	5.6	(696)

In contrast, strong majorities expect increases in the availability of electronic publications of scholarly journals (87.6%), government resources (87.6%), non-scholarly journals (73.7%), newspapers (71.8%), and primary materials (71.3%). Despite the fact that most faculty have not themselves tried to publish their material electronically, there is an overwhelming expectation that in almost all areas of publishing, electronic outlets will increase in importance. The data suggest that many faculty feel they do not have the computer infrastructure or technical support to meet these changes.

Further views on the perceived inevitability of electronic publishing in the Social Sciences and Humanities are in Table 11. Respondents were asked whether they expect personally to have greater involvement in publishing electronically in the future. 66.1% expect to do so, compared to 22.7% who do not. A further 11.2% are uncertain. Furthermore, there is a perception among faculty members that the issue of credibility for electronic scholarship will be addressed in the years ahead. When asked whether they expect material published electronically will have equal or greater value to material published traditionally in the future, 63.2% said yes, compared to 23.1% who said no. Thus, despite current reservations about the value, and the credibility, of electronic publications, the prevailing view is that the situation will be markedly different in the future.

Table 11

Question: Do you personally expect to have greater involvement in publishing electronically in the future?

	Percent
Yes	66.1
No	22.7
Don't know	11.2
N	(696)

Question: Do you expect that material published electronically will have equal or greater value to material published traditionally in the future?

	Percent
Yes	63.2
No	23.1
Don't know	8.3
N	(696)

	Percent

Impact of Demographic Characteristics on Attitudes Towards and Use of Electronic Resources

The preceding analysis examined attitudes and patterns of behaviour regarding the use of electronic resources for scholarly purposes by scholars in the Social Sciences and Humanities in Canada. This section of the paper examines those same attitudes and behaviours according to a number of demographic features. The analysis in Tables 12 to 20 examine whether each of the demographic characteristics is a statistically significant predictor of attitudes or behaviours with respect to electronic publishing. The tables present the results for each of the five demographic variables, presented as the independent variables, according to the chi-square statistic. The values of chi-square are presented as (*) where it is significant at the .05 level and (**) for the .01 level of significance. Where the independent variable is not statistically significant, the table presents this as (--). A finding of non-statistical significance is interpreted as indicating that this variable did not differentiate in responses to that attitude or behaviour. As we progress through these data, one of the more consistent findings is how often the independent variables do not produce statistically significant relationships. This suggests that many of the patterns of attitudes and behaviours about electronic publishing observed in the frequency distribution tables above, are common to most Social Scientists and Humanists, males and females, English and French, senior and junior faculty members, and those whose degrees are from Canada or elsewhere.

Using On-line resources

With respect to the use of on-line resources, Table 12 indicates a number of significant relationships. For example, language is significantly related to the use of on-line scholarly journals, with 53.3% of English speaking respondents indicated they have used them compared to 43.8% of Francophones. Social Scientists were more likely to use on-line government resources than Humanists, although they are probably more likely to use such resources in hard copy as well, since government resources are often closer to the substantive field in Social Sciences. Scholars educated either in Canada or the United States were more likely to use electronic government resources than those educated elsewhere. Finally, with respect to on-line newspapers and archival materials, males were more likely than females (43.0% versus 31.3% for newspapers; 44.0% versus 32.3% for archival materials) to use such resources.

Table 12

Use of On-line Resources by Demographic Characteristics (Chi-square test of Statistical Significance)

Question: Do you ever use the following electronic resources for research purposes?

	Language	Gender	Academic Rank	Country of PhD	Academic Discipline
Type of Electronic Resource					
On-line scholarly journals	*	--	--	--	--
On-line government resources	--	--	--	**	**
On-line newspapers	--	*	--	--	--
On-line archival materials	--	*	--	--	--

* $p < .05$

** p < .01
-- p > .05

Table 13 contains responses to changes in use of on-line resources according to the demographic characteristics. The only variable to emerge as statistically significant in this analysis was the impact of academic rank on the degree to which use has changed. The largest differences were among the sessional or other instructors compared to Assistant, Associate and Full Professors, with the former (75.0% and 66.7%, respectively), less likely to have increased compared to the latter (85.5%, 85.7% and 83.5%, respectively).

Table 13

Changes in Use of On-line Resources by Demographic Characteristics

(Chi-square test of Statistical Significance)

Question: Has your use of these materials increased, decreased, or stayed the same over the past 5 years?

	Language	Gender	Academic Rank	Country of PhD	Academic Discipline
Type of Electronic Resource					
On-line scholarly journals	--	--	--	--	--
On-line government resources	--	--	--	--	--
On-line newspapers	--	--	--	--	--
On-line archival materials	--	--	**	--	--

*   p < .05
** p < .01
-- p > .05

Similarly, Table 14 contains data on overall changes in use of on-line resources by the demographic characteristics. The data show that language was the only characteristics significantly related to such changes, in which 84.7% of English-speaking respondents say their use of such resources has increased, compared to 75.8% of Francophones. Thus, while Anglophones were more likely to have experienced and increased usage, the increase was substantial for both groups. For the other demographic features, no statistically significant relationship emerged.

Table 14

Overall Changes in Use of On-line Resources by Demographic Characteristics

(Chi-square test of Statistical Significance)

	Language	Gender	Academic Rank	Country of PhD	Academic Discipline
Question: Overall, would you say your use of on-line resources has in the past 5 years, increased, decreased, or stayed about the same?	*	--	--	--	--
Question: Would you cite electronic resources for a print article or book?	--	--	--	--	--

*   p < .05
** p < .01
-- p > .05

Teaching and Publishing with On-line resources

Table 15 presents the impact of the demographic characteristics using on-line resources for teaching purposes, or trying to publish in electronic outlets. Most significant is the finding that the demographic features as a whole have almost no significant impact on the use of electronic resources for teaching of attempts to publish electronically. The one exception is with respect to discipline, in which 58.8% of Social Scientists, compared to 50.7% of Humanists have attempted to integrate electronic resources into their teaching. However, it is notable that even in this single instance of a statistically significant relationship, the differences (of 8 percentage points) are relatively modest, and speak more to the similarity in experiences of the academic disciplines.

Table 15

Use of On-line Resources for Teaching and Attempting to Publish in Electronic Resources by Demographic Characteristics

(Chi-square test of Statistical Significance)

	Language	Gender	Academic Rank	Country of PhD	Academic Discipline
Question: Have you integrated electronic resources into any of the courses that you teach?	--	--	--	--	*
Question: In the past 5 years, Have you published or attempted to publish any item of scholarship in a refereed electronic outlet?	--	--	--	--	--

*   p < .05
** p < .01
-- p > .05

Perceptions of Differences in Traditional and Electronic Resources

Similar to the findings for the impact of demographic features on other attitudinal and bahavioural items, the data in Table 16 demonstrate weak impacts of these factors on perceptions of differences between electronic and traditional resources. Men are more likely agree than women, and English-speaking more likely than French-speaking that there is no difference in quality between material published traditionally and electronically. However, even these differences tend to relatively modest, and overall the demographic factors have little impact on these attitudes.

Table 16

Perceptions of Differences in Traditional and Electronic Resources by Demographic Characteristics

(Chi-square test of Statistical Significance)

Statements	Language	Gender	Academic Rank	Country of PhD	Academic Discipline
There is no difference in quality between material published electronically and material published non-electronically	**	*	--	--	--
Peer review of electronic publishing ensures that its quality is similar to that of non-electronic publishing	--	--	--	--	--
A problem with electronic publishing is to ensure its long-term accessibility through proper archiving	--	--	--	--	--

At the moment, publishing in non-electronic outlets is more credible than publishing in electronic outlets	**	--	--	--	--

*   p < .05

** p < .01

--   p > .05

Using Pre-publication Web-sites

The data presented in Table 8 showed that only a minority of respondents (22.4%) had ever made their scholarship available through pre-publication web-sites, and further than a larger minority (41.1%) had obtained other scholarship through such sites. The data in Table 17 indicate that the likelihood of doing both of these activities is significantly influenced by a number of demographic factors, including language, gender and academic discipline. For example, men were almost three times as likely as women (27.1% versus 10.6%) to have made their scholarship available through a pre-publication web-site, and also were more likely (44.8% versus 31.8%) to have obtained other scholarship through this means. With respect to linguistic differences, Francophones (34.8%) were more likely than Anglophones (18.1%) to have made their own scholarship available through a pre-publication web-site, and also were more likely (50.6% versus 37.8%) to have obtained other scholarship this way.

Table 17

Use of Pre-publication Web-sites by Demographic Characteristics

(Chi-square test of Statistical Significance)

	Language	Gender	Academic Rank	Country of PhD	Academic Discipline
Question: Have you ever made your scholarship available electronically through a pre-publication web-site?	**	**	--	--	**
Question: Do you obtain scholarship electronically through pre-publication web-sites?	**	**	--	--	**

*   p < .05
** p < .01
-- p > .05

Use of pre-publication web-sites is one of the few items in which the academic discipline of faculty members played a significant role. Social Scientists were more likely than faculty members in the Humanities (25.8% versus 13.9%) to have used pre-publication web-sites for the dissemination of their own research. Similarly, Social Scientists also were more likely than Humanists (45.6% versus 33.2%) to obtain other scholarship from pre-publication web-sites. This finding may suggest that such sites are more readily available in the Social Sciences than in the Humanities. It might also be the case that the computer infrastructure to access such sites is differentially available across the university.

Adequacy of Computer Infrastructure

To examine this latter hypothesis in more detail, Table 18 presents the results of the analysis of the demographic characteristics on attitudes towards adequacy of computer infrastructure. Overall, the demographic characteristics were not strongly related to attitudes towards the adequacy of computer infrastructure. There are several notable exceptions to this. First, language was significantly related to the manner in which respondents evaluated the adequacy of computer infrastructure to access on-line resources. Whereas 82.6% of Francophones indicated that the infrastructure was either adequate or more than adequate, only 72.7% of Anglophones held this view. Conversely, while 17.4% of Francophones felt that the computer infrastructure was either inadequate of barely adequate, fully 27.7% of Anglophones thought so.

Table 18

Perceived Adequacy of Computer Infrastructure by Demographic Characteristics

(Chi-square test of Statistical Significance)

	Language	Gender	Academic Rank	Country of PhD	Academic Discipline
Question: How would you rate the adequacy of the computer infrastructure available to you to access on-line resources?	**	**	--	--	--
Question: How would you rate the adequacy of the computer infrastructure available to you to publish your own scholarship on-line?	--	*	--	--	--

Question: How would you rate the adequacy of the technical support provided by your university for accessing electronic resources?	--	--	--	--	--

*   p < .05
** p < .01
--   p > .05

The other significant factor explaining attitudes towards the adequacy of computer infrastructure was gender. Women were more likely than men (35.4% versus 21.0%) to indicate that the computer infrastructure available to them was inadequate or barely adequate to access on-line resources. Similarly, they were more likely than men (53.0% versus 39.9%) to rate their computer infrastructure as inadequate to publish their own scholarship on-line. On other matters concerning computer infrastructure, the demographic characteristics do not distinguish in a statistically significant way the attitudes of respondents.

Future Use of Electronic Resources

Data on the impact of demographic characteristics on perceptions of future use of electronic resources in publishing various types of materials showed mixed results. For example, on the future of electronic books, the only significant relationship was with academic discipline, and here the differences were small between Social Scientists (51.8%) and Humanists (45.2%) on whether they thought books in electronic format will be more widely available in future. With respect to similar attitudes toward scholarly journals, the only significant factor was language. Once again the difference was small between the percentage of Francophones (94.9%) and Anglophones (87.4%) who felt that such journals would be more widely available in the future.

Table 19

Expectations of Future Use of Electronic Resources by Demographic Characteristics

(Chi-square test of Statistical Significance)

Question: Do you think each of the following will become more widely used in electronic form in the future, less widely used than today, or stay about the same?

Resource	Language	Gender	Academic Rank	Country of PhD	Academic Discipline
Books	--	--	--	--	*
Scholarly journals	*	--	--	--	--
Non-scholarly journals	--	--	--	--	--
Newspapers	*	--	--	--	--
Primary materials	--	*	--	--	**

Government resources	--	--	--	*	--

*   p < .05
**   p < .01
--   p > .05

French-speaking respondents also were slightly more likely than English-speaking respondents (76.9% versus 73.5%) to think that newspapers would be more widely available electronically in the future. When asked about future available of primary materials on-line, women were more likely than men (79.3% versus 73.7%), and Social Scientists more likely than those in the Humanities (80.8% versus 73.3%) to expect that they would be widely available. With respect to expectations about the availability electronically of government resources, more than 9 in 10 respondents overall expected that the availability will increase, with those whose PhD is from outside Canada and the US more likely to hold this view (98.7%) than those with the PhD from Canada (93.0%) or from the US (93.6%).

Future Personal Use and Value of Electronic Publishing

On expectations for personal use of electronic publishing in the future, language and academic rank have a significant impact on such views. French-speaking respondents were much more likely than English-speaking respondents (88.6% versus 69.2%) to indicate that they expected their personal use would increase in the future. With respect to academic rank, Assistant Professors (82.3%) were more likely than Associate (72.0%) or Full Professors 74.0%) to expect their personal use to increase in the future.

Table 20

Expectations for Future Personal Use of Electronic Publishing, and Expected Future Value by Demographic Characteristics

(Chi-square test of Statistical Significance)

	Language	Gender	Academic Rank	Country of PhD	Academic Discipline
Question: Do you personally to have greater involvement in publishing electronically in the future?	**	--	*	--	--
Question: Do you expect that material published electronically will have equal or greater value to material published traditionally in the future?	**	**	--	--	--

*   p < .05
** p < .01
-- p > .05

On the question of whether one expects material published electronically to have equal or greater value in the future compared to material published traditionally, the following relationships emerged. Women were less likely to think so than were men (70.9% versus 74.1%), and English-speaking respondents less

likely than French-speaking respondents (70.7% versus 80.1%). The other demographic characteristics had no significant impact on attitudes towards the future value of electronic publishing.

Conclusion

This study has examined the attitudes and behaviour of scholars in the Social Sciences and Humanities in Canada towards electronic publication. The study found that many scholars have become active users of electronic resources in their scholarly research. However, they are still much less likely to try to publish their own scholarship electronically than they are to access materials electronically for scholarly purposes.

The study indicated a number of important reasons for the reticence to publish scholarship electronically. One group of explanations can be referred to as concerns about preservation of scholarship. Respondents indicated that the uncertainty over the long-term availability of electronic resources dampens their enthusiasm towards its use. A second concern is over the value that ascribed to electronic scholarship. Most members of academic staff at Canadian universities go through a periodic (often annual) assessment of their academic performance, and for many, this assessment is tied to a process of awarding merit awards. A concern over the perceived value of an electronic publication will inevitably lead to decreased usage of this method of dissemination.

The study also found that computer infrastructure is a significant issue when scholars are considering whether to publish their material through electronic means. A majority of respondents felt that their computer infrastructure was at best barely adequate to prepare them to publish their scholarship electronically, or the technical support in place at their university to assist in this regard also was at best barely adequate. Thus, for many scholars, the decision to publish electronically is heavily dependent upon available resources, and many feel the resources need for the task are not available.

When we examined this range of attitudes by a number of demographic factors, we found that the Canadian scholarly community in the Social Sciences and Humanities is better characterized by similarity of views and experiences than by differences. On a broad range of issues, often no consistent pattern emerged differentiating between respondents. Scholars in the Humanities, for example, appear to have similar experience, and face similar challenges, to scholars in the Social Sciences. This is also true among English-speaking and French-speaking scholars, men and women, those of various stages of their academic career, and those educated in Canada and abroad. The institutional responses designed to address the challenges that electronic publishing poses for many in the Social Sciences and Humanities should take into account these common experiences in developing solutions that serve all of the academic community.

Appendix A

Methodological Notes:

The survey was conducted by telephone using a Computer Assisted Telephone Interviewing system. The telephone numbers called constituted a random sampling of a database constructed from the faculty directories of the following universities:

- The University of British Columbia
- The University of Saskatchewan
- York University
- Laurentian University
- Dalhousie University
- The University of New Brunswick
- Laval University
- University of Sherbrooke

The total number of surveys completed was 696. Five hundred and eighteen were completed in English and 178 were completed in French.

The original survey was designed in English. This survey was used in approaching faculty members from all universities except Laval University and The University of Sherbrooke. These English language surveys were primarily completed during October and November, 1999. Additional surveys were completed in December once additional funding was acquired.

The survey was translated into French and this was the language used to approach faculty members from Laval University and The University of Sherbrooke. If these respondents requested to proceed with the survey in English, this was accommodated. There were three faculty members that made such a request. The translation of the survey was provided by the Faculte Saint-Jean, the University of Alberta. The translation of the phrase 'on-line' used was 'en-ligne.' Interestingly, there was some disagreement amongst the respondents regarding the proper translation of this term. While some agreed with the original 'en-ligne,' others felt 'le web' or simply 'internet' was more appropriate.

The French language surveys were completed during the period of November 30th 1999 to January 26th, 2000. The completion rates for the French and English language respondents were comparable – about 73% completion. The calculation of non-responses include: numbers that are not in service or are fax/modem/pager lines, numbers of faculty on sabbatical/leave or non-faculty, refusals and survey terminations.

Once a respondent was reached, the French language surveys tended to take less time than the English language surveys. The average survey completion time was about 12 minutes for French language respondents, 18 minutes for English language respondents and 16.5 minutes overall.

The completion rate and the collection of data was affected by particular issues that were raised at two universities.

1. Although ethics approval for the study had been given by the University of Calgary ethics committee, the University of British of Columbia requested that their faculty not be interviewed until the UBC ethics committee had reviewed the survey. Approval from this committee was given December 1, 1999.
2. Although the VP Research of the University had given general approval of the study, the University of Dalhousie Psychology department requested that interviews of their faculty be stopped.
3.

   The University of Quebec at Montreal was initially intended to be one of the French language universities but it did not respond to a series of requests for faculty telephone numbers; consequently, the University of Sherbrooke was substituted.

SCHOLARLY Electronic Publishing

Study Members

[Partner Institutions](#)

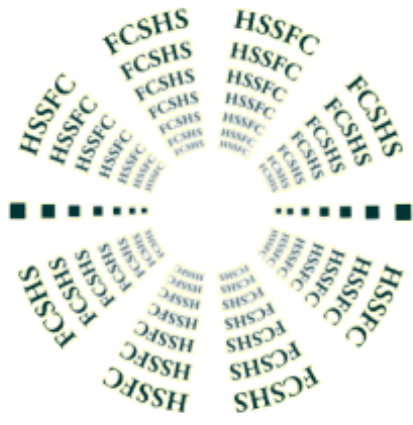[Working Groups Membership](#)

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Study Partner Institutions

The Humanities and Social Sciences Federation of Canada

Primary Funding Partner

The University of Calgary

Lead Institution

The University of Alberta

The University of New Brunswick

Working Groups Membership

Opinion Poll

- Dr. Keith Archer
- Sub-contractee: ACCORD Research

Resource Harvesting

- Dr. Rob Huebert
- Dr. Murray McGillivray
- Tim Au Yeung
- Helen Clarke
- Jacqueline Girouard
- Dr. Martin Beaudoin

Case Studies

- Dr. Rob Huebert
- Shirley Onn
- Tim Au Yeung
- Jackie Bell
- James Kerr

Advisory Group

- Dr. Frits Pannekoek
- Morven Wilson
- Alan MacDonald

Biographical Highlights

University of Calgary Electronic Resources Research Team

Dr. Keith Archer

Professor of Political Science and Associate Vice-President (Research)

Keith Archer joined the University of Calgary in 1984, and was appointed Professor of Political Science in 1995. He is the author or co-author of six books and many articles and chapters on political parties and elections in Canada. He was appointed Associate Dean (Research) in Social Sciences in 1995, and Associate Vice-President (Research) in 1999.

He has had experience with electronic publishing in both a research and administrative capacity. He was the lead writer of the section on voter registration for an electronic encyclopedia on the Administration and Cost of Elections, writing approximately 100 files ranging from 1 to 5 pages in length. The ACE project was sponsored by the United Nations, the International Foundation for Election Systems, and the International Institute for Democracy and Electoral Assistance. It can be found at http://www.aceproject. org This experience provided first-hand insight into both the challenges and benefits of electronic publishing. The CD-ROM and web site were released in October 1998, and are in a state of continuous revision.

In addition, he chaired the University of Calgary Library Task Force in 1997, and was a member of the Library of the Future Task Force in 1998. With these two task forces, the University of Calgary examined the challenges of information resources for the new millennium, and outlined a model for the transformation of the library and of information resources.

Dr. Murray McGillivray

Head, Department of English

Dr. Murray McGillivray is Professor and Head of the Department of English. He has been active in electronically delivered teaching and research for the last decade. As a researcher, his current focus is on using the electronic medium for improvement of scholarly publication of editions of medieval texts, a direction that resulted in the 1998 publication of his CD-ROM edition of Geoffrey Chaucer's *Book of the Duchess*. The Book of the Duchess is a ground-breaking scholarly hypertext project in which photographs, sound files, and numerous ancillary texts are linked to a reading text and critical text of the poem.

Dr. McGillivray is currently working on electronic editions of the Towneley mystery plays and of the manuscript of the Pearl-poet. He organized the 1995 Electric Scriptorium conference, a virtual and physical conference that assembled a world-wide group of scholars to discuss digital approaches to the study of medieval manuscript texts.

As a member of the Philology Research Group steering committee, Dr. McGillivray is working on a SSHRC Research Development Initiative grant to help researchers integrate contemporary technologies into their textual editing practice through a series of summer institutes and block courses. He is also a prolific author of Web instructional materials, having acted as the general editor of sites on grammar and composition, and as the author of a complete Internet-delivered course on the Old English language.

Dr. Rob Huebert

Assistant Professor Political Science

Dr. Rob Huebert's academic interests are in Political Science in the areas of International Relations, Comparative Politics, and Public Administration. He has published extensively and has received numerous academic and teaching awards and research grants. Dr. Huebert brings evaluation expertise to this research project.

Dr. Huebert developed and delivered the first Internet-based course in his department. The course, entitled *Issues and trends in World Politics*:, can be viewed on the Web at : http://www.ucalgary.ca/UofC/faculties/SS/POLI/poli283/index.htm

He recently presented a paper on the development of his Internet course at the *Virtual Conference 1999*, http://teachpol.tcnj.edu/conference/huebert.htm

Dr. Frits Pannekoek

Director, Information Resources, University of Calgary
Associate Professor of Heritage Studies, Faculty of Environmental Design

Formerly Director, Historic Sites Service, Alberta Community Development from 1979 – 1991 and from 1992 – 1998, Dr. Frits Pannekoek was also responsible for the Provincial Archives of Alberta from 1992 – 96. Responsibilities included the planning and management of research, development and operation of all *in situ* historical resources in Alberta.

His research interests lie in public or applied history. He is particularly concerned with the impact of interpretative techniques on culture. He is equally interested in creating communication techniques that could motivate indigenous cultures to understand their heritage resources within the context of their own experience. Dr. Pannekoek is currently leading an initiative to digitize Alberta heritage resources to

provide Canadians with new access.

Dr. Pannekoek's current administrative responsibilities encompass the University Library (and its special collections e.g. the Canadian Literary Archives and the Canadian Architectural Archives), the University Archives, and the University of Calgary Press. He has been the driving force behind the construction of the University's Information Commons, and the creation of a digitization centre associated with the University of Calgary Press. The new digitization centre will position the press as one of the leading electronic experimental publishers in Canada.

Alan H. MacDonald

Director of Information Services

Alan MacDonald has been Director of Information Services at the University of Calgary since 1988. Previously he was Director of Libraries and Director of the University of Calgary Press (where he is currently on the Editorial Board).

He has a long history of involvement with the evolution of scholarly communication particularly in advocacy for its electronic aspects. He served on the University of Calgary Scholarly Communication Task Force (1982) and as principal resource to the AUCC/CARL Joint Task Force on Academic Libraries and Scholarly Communication (1995-1996).

A former President of both the Canadian Association for Information Science and the Canadian Library Association, he was until recently President of the Canadian Institute for Historical Microreproductions and was involved in its move into electronic delivery of scholarly materials.

A former member of the National Library of Canada Advisory Board and a current member of the Bibliographic Society of Canada, his contributions to libraries and scholarship have been recognized with the CACUL Distinguished Canadian Academic Librarian Award, Canadian Library Association Outstanding Service to Librarianship Award and recently the University of Toronto Faculty of Information Studies Alumni Association Jubilee Award.

In his past are a Council on Library Resources Fellowship and the first University Microfilms International Executive Fellowship.

Shirley Onn

Director University Press

Shirley Onn has been Director of the University Press since 1992. Her academic background is in Canadian Literature, Library Science, and Business Management. She has extensive experience in

journal and book publication. Under Ms. Onn's direction in 1998, the U of C Press published the CD-ROM, *Geoffrey Chaucer's Book of the Duchess: A Hypertext Edition*, by Murray McGillivray.

Ms. Onn has been editor of the U of C Calendar since 1994 and was responsible for the conversion of the Calendar from print to Web and CD-ROM format. The CD-ROM was published from 1996-1998. Additionally, under her direction, of the University Press' Digitization Centre is currently building an electronic collection of Alberta's Historical Material in collaboration with the University of Alberta, the Provincial Archives, the Glenbow Museum, and the Nickle Arts Museum. Funding has been provided by the Millennium Foundation, The Alberta Libraries, and the Alberta Knowledge Network.

Ms. Onn is currently the treasurer of the Association of Canadian Publishers (ACP), Vice-President of the Association of Canadian University Publishers (ACUP), and secretary of the Book Publishers Association of Alberta (BPAA). She has also served as a Director for the Association for the Export of Canadian Books (AECB).

Morven Wilson

Director of Information Technologies

Morven Wilson is responsible for the University of Calgary's central information technologies infrastructure, and in particular for multiple server and campus networks, and links to the Canadian national networks used to support e-publishing and e-communications. His extensive university background includes both academic and administrative appointments at several post-secondary institutions.

Tim Au Yeung

University of Calgary Press, Manager of Digitization Initiatives

Prior to joining the University of Calgary Press, Tim Au Yeung was the supervisor of Product Mastering and Quality Assurance for Visual Content Development at Adobe Systems Incorporated and EyeWire, Incorporated. During his tenure at Adobe Systems Incorporated, he developed the quality assurance team and protocols for Visual Content Development from the ground up. This experience combined with a background in digital printing brings a high level of digital imaging technologies expertise to the Press. In addition, Tim holds a Bachelor of Arts degree in Psychology from the University of Calgary and is currently pursuing a second degree in Religious Studies

Jackie Bell

University of Calgary Press, Manager of Development Initiatives

Jackie Bell is an editor, writer, and communications specialist in both print and electronic publication. She has developed and distributed a number of electronic publications at the University of Calgary. She is currently developing an electronic journal unit within the University Press. Her academic background is in English Literature and Psychology.

Biographical Highlights

University of Alberta Electronic Resources Research Team

Dr. Martin Beaudoin

Dr. Martin Beaudoin is an associate professor of linguistics at the Faculté Saint-Jean whose primary interests focus on the learning and teaching language, particularly French and second languages. He has had a number of publications as well as receiving numerous grants. He is currently serving as Chair of Arts for the Faculté Saint-Jean

Dr. Beaudoin has also been involved with language teaching by computer. In particular, he has completed several projects to computerize courses at the Faculté in order to deliver the courses over the Internet, one involving French language instruction and another involving introductory linguistics. Currently, Dr. Beaudoin is working on a French grammar database jointly with three other Albertan universities. Dr. Beaudoin brings to the team a familiarity with electronic resources in French and with researchers working in French on the Internet. In this capacity, he is well suited to lead review French electronic resources for publishing in Canada.

Jacqueline Girouard

BA '84, MLS '86.
Chef des Services au public, Bibliothèque Saint-Jean

Ms. Girouard (Jacqueline.Girouard@ualberta.ca) has worked in the Bibliothèque Saint-Jean since graduating from the Masters Program in Library Science at the University of Alberta. As Head of Public Services at BSJ, Ms. Girouard is responsible for Reference Services and Instruction and therefore has many years of experience in reference work and teaching library skills, including searching for electronic resources.

Francine Lapointe

B.A '77, MLS '79
Bibliothécaire de référence, Bibliothèque Saint-Jean

Ms. Lapointe (Francine.Lapointe@UAlberta.ca) is a graduate of Université de Montréal and of McGill University and has many years of experience in reference work and teaching library skills in a variety of government departmental libraries, as well as at the National Library of Canada and at Grant MacEwan Community College. For the past four years, she has worked as a reference librarian at Bibliothèque

Saint-Jean, University of Alberta Libraries.

Biographical Highlights

University of New Brunswick Electronic Resources Research Team

Electronic Text Centre

The University of New Brunswick Libraries

The University of New Brunswick Libraries' Electronic Text Centre is both a publisher and access provider for electronic texts. The ETC's collection contains historical and literary texts marked up in SGML, including Chadwyck-Healey's *English Poetry* database as well as various texts from UNB's Archives and Special Collections which are published through the Centre. The collection also contains journals and newspapers, including an archive of New Brunswick's *Telegraph Journal* newspaper.

The University of New Brunswick Libraries' Electronic Text Centre will bring considerable technical expertise and experience to the team. The Centre has done extensive work with SGML, the Text Encoding Initiative (TEI), the Dublin Core proposal for metadata and is currently engaged in SSHRC funded research on metadata. The Electronic Text Centre will assist in addressing technology issues, particularly pertaining to electronic publishing and metadata/data interchange.