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M. Keith Ewing

St. Cloud State University, kewing@stcloudstate.edu

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The Library of the Future and the Idea of Change

a presentation at the University of Nevada - Reno
2 May 1996

M. Keith Ewing

I have been thinking about the future of libraries for a long time. Authoring St. Cloud State's recently approved library building program provoked a wide-ranging journey of reflection and discovery. Preparing for this talk and a similar talk I gave at a MINITEX Reference conference last fall has provided me opportunity for additional reading and talking with colleagues. Everything I read, every person I talk with, opens new doors that need to be entered or raises new ideas that need to be pursued.



Recently, I read an article in the St. Cloud Times that did not immediately concern me. But several colleagues read it and they did become concerned. My colleagues remembered the recent legislative session where many of us were lobbying in support of new library construction dollars and where we often heard legislators questioning the future of libraries and librarians. Legislators want to know, "if everything is going

to be available electronically, why are we continually putting more and more money into libraries?"

The only people on our staff who are not concerned by this article are those who are not librarians: the graphic artists, systems designers, media producers, and instructional designers. Of course, the one graphic artist who has become interested in computer animation is delighted by this article.

Our appearance among the bottom ten careers may not be our sense of the future, but it is based upon current Dept of Labor statistics and considerable study by futurists. While the name "librarian" may well disappear, some of the ideas behind "librarian," especially in training and educating people, will not disappear. Before you become too concerned about the potential loss of your position, look at the "Internet content provider" listed in the top 10. I'd like to suggest that we can play a role there..

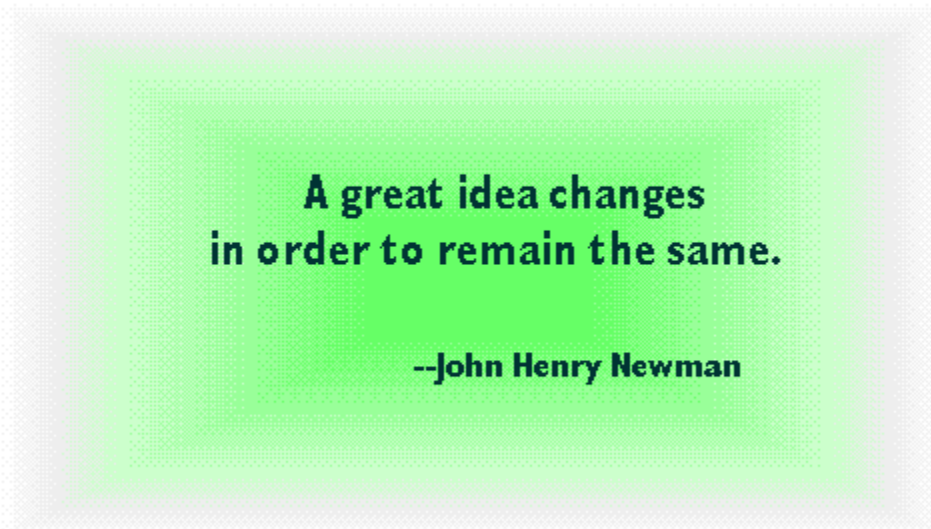
Some people outside of libraries, including many of our colleagues across campus, are predicting the eventual demise of printed books and journals and the elimination of libraries. Perhaps Alvin Kernan is right when he says that literature will disappear in the digital age because it is a product of a print culture and that a new kind of discourse will emerge. I don't believe book literature will disappear (nor all books and journals). But I do agree with those commentators, both within the profession and without, who believe that many, perhaps most, libraries will disappear, their resources and services absorbed by those able to establish a new role as a player in knowledge communication.

We trained hard but it seemed that every time we were beginning to form up into teams we would be reorganized. I was to learn later in life that we tend to meet any new situation by reorganizing, and a wonderful method it can be for creating the illusion of progress while producing confusion and inefficiency and demoralization.

--Petronius Arbiter
Latin writer of the 1st Century A.D.

What we should understand from this is that we cannot continue to do what we have done in the past or what we are doing in the present. Merely changing the way we organize or manage our resources or restructure our organizations is not an answer. Restructuring will come soon enough, after we have determined where we want (need) to be.

One idea, that is becoming increasingly clear, is that the fundamental idea of the library must change, that we must move beyond being repositories for the storage and dissemination of knowledge. Richard DeGennaro defines libraries as "institutions which contain and provide access to man's recorded knowledge." Michael Buckland suggests that "libraries serve is to collect, organize, and service documents." Libraries do not exist because there are books, periodicals, or any other media designed to transmit knowledge. (Indeed an argument could easily be made that much publishing takes place because of libraries.) Libraries exist because there is a demand for knowledge (a need to know) and a need for assistance in locating the resources that hold that knowledge. But this is not a reason that will continue, if it continues today.



**A great idea changes
in order to remain the same.**

--John Henry Newman

When I wrote St. Cloud State's new library building program five years ago, I firmly believed that books and most journals (the exorbitant costs of many preclude me from saying all) were the most economical, most convenient, and most efficient technology (medium) for storing and disseminating information. I attended the first two gopher conferences to explore its potential as an organizational tool; but the conferences did little to dissuade me from a continuing belief in the efficacy of the book. But the development of Mosaic, and the subsequent and continuing development of other Web browsers, designed to take advantage of a slumbering protocol (HTML) and potentially fulfill the prediction of Vannevar Bush, changed my thinking.

We are far from F. W. Lancaster's vision of a paperless office (in fact we are probably consuming more paper than ever before, both in publishing and desktop printing), but over the next decade the most useful and most timeless knowledge on paper will be converted to digital form. Everything else, perhaps as much as 80% of items in every library, will remain on paper, occasionally offering up tidbits of knowledge for information archaeologists of the future. Every academic library has these items: those that were never reclassified from Dewey to LC, those that were never bar-coded, and those that were sent to remote storage because no one had used them in the last ten years or librarians believed that the information they contained was obsolete. It is our increasing awareness of these items, and the continual spiraling of book prices and journal subscriptions, that has prompted the move from ownership to access, from just-in-case to just-in-time. On top of this, as we begin to move the information out of the library and directly to the user (reversing the traditional flow of information, as Eli Noam notes in his October 1995 Science article) we must ask not only about how to support remote users, but we must begin to confront the possibility that our mediation support may not be the best way to provide the subsidy (the economic efficiency brought to information resource access by libraries) that is required.

The future of libraries, however, is not simply a choice between becoming a just-in-case traditional library (which will be necessary so that the just-in-time library can operate) or a just-in-time library. At the moment we are choosing a middle path, partly ownership, partly access, with the emphasis, as a result of institutional pride and intransigent accrediting agencies, still on ownership. We are learning to use and apply technology tools to traditional operations and resources, but most of what we have done to date is inappropriate to the new digital forms of information. We have not determined where to provide the subsidy in the system, where to make the intelligent investments that benefit the user's access to the appropriate information. The time is rapidly approaching when we will have to make harder choices about our future: whether we will continue to emphasize ownership and availability of "print" resources (either in paper or electronic form); or developing, owning, and disseminating digital knowledge resources; or becoming an institution that knows where knowledge is and instructs others in techniques to locate it and put it to use. In this latter direction, we will rapidly come into conflict with our discipline-based faculty colleagues across campus.

Richard Lanham (Electronic Word) sees librarians awakening from a curatorial slumber to find "their job now a radically rhetorical" role. In Lanham's online vision, librarians assert themselves as teachers of mediums, rather than tools, instructing users in information and visual literacy, the "rhetoric of communication." With the world's information in a multimedia digital kaleidoscope, the librarian's job is nothing short of assisting researchers with new forms of communication. If one accepts that

digital formats are going to become a major form of publication, and I do, then the question of the impact of new mediums on traditional forms of expression is well placed, as is recognizing the need to assist readers interpret new mediums in a practical way. But even this role, changed though it is from what we do in traditional library use instruction (BI), is only an evolutionary step into an unknown future.

The greatest crisis facing modern civilization is going to be how to transform information into structured knowledge.

--Carlos Fuentes

When I revisit St. Cloud State's building program, I realize that our "library of the future" is largely a thing of the past. Some of its ideas (maintaining large acquisition and cataloging departments, a traditional reference "desk," and an unintegrated government publications unit) are carryovers from the past; others (placing 80 per cent of the collections in on-site compact shelving) are compromises with the present. Our faculty knew change would take place, but we did not anticipate the rapid adoption of hypertext and the almost exponential rate of change. Fortunately, (or unfortunately, depending upon your point of view), we incorporated another idea into the building program: the idea of the "library" as an agent of change.

The most controversial component in the program is also likely to be its ultimate salvation, the InforMedia Services area. Occupying about 20 per cent of the building area, InforMedia services is a laboratory designed to promote strategic alliances with discipline-based faculty and with our external clients (local industries and organizations) to anticipate and promote change. Our mission is multiple: to affect change through work with content experts to create, organize, design, and disseminate digital instructional and informational resources; to provide students and scholars with the resources, tools, knowledge, and opportunities to mine (access and assess) digital environments and apply what they uncover; and to explore and evaluate new information technologies to fulfill the information requirements of students wherever they are and industries whenever they need it. InforMedia Services looks to create change because we should, not because we have to.

As a team, InforMedia services is struggling to solve several management issues (several of which will be of value to our more traditional colleagues), including:

- physical/logical arrangement of information resources for which we assume the responsibility to create, maintain, and manage (at the moment we are exploring "canonical tasks" is organizing instructional support materials; and working with faculty on permission to copyrighted materials)
- negotiating permission to access knowledge resources (largely on a statewide basis through MINITEX; for us, access implies the ability to disseminate information to "our" students wherever they may be and whenever they may require it)
- mirroring knowledge resources (while we are not at present doing this, we are researching regional cooperation in mirroring and providing access to resources where the size of our "pipe" limits or inhibits access) (both access and mirroring require us to investigate and develop a solution to control access)
- collaborative environments (especially to create "learner opportunities" for instructional purposes, to facilitate group work, and to promote interaction with mentors; this also raises issues of privacy and what can and should be made public).

**There is nothing worse
than being the best at something
that doesn't need to be done.**

--Peter Drucker

The changes we are anticipating in InforMedia Services affect not just the library, but the entire academical enterprise. As Jennifer James said in her talk at the ACRL/LITA President's Program at 1995 ALA in Chicago, after medicine and law, the next lodge to crumble will be the academy. The hour lecture and the chalk board are as doomed as the card catalog. Multimedia, computer-based training, and collaboration between both students and teachers

and students and students made possible by electronic mail and computer conferencing will change the nature of instruction.

So what does this mean for academic library services, in particular public services? It means challenging every assumption of our profession. If we concentrate solely on satisfying the needs of the present, we necessarily frustrate the needs of the future. It may not be true that the most important things we do is classify or shelve a book or provide a 50 minute library use instruction session, or even answer a reference question. Maybe the most important thing you do today will be to use NLightN to explore the Internet. The administration may well be concerned about a loss of productivity (however we may measure it in a library setting), students and faculty (with their compressed views of time, which we helped to create) may be momentarily frustrated because their "need" is not immediately fulfilled, and colleagues within the library may be annoyed that some get to "play" while other "do the work." But maybe NLightN, or another information tool, either through its use or through what you find, will provoke your thinking or challenge a long-held assumption.

Let me demonstrate with a scenario developed out of conversations in which I participated as a member of a statewide next generation library automation task force.

I am a student at St. Cloud State University, taking a course through distance education at Pine Technical College in Pine City, some 60 miles east of St. Cloud. I live in Hinckley and drive the 10 miles to Pine City one night each week to attend lectures delivered over interactive television. One night each week I drive to Pine Tech to use the computer lab facility to participate in a class group discussion via desktop videoconferencing or a multiuser domain. I can participate in the multiuser domain or videoconferencing from my computer at home, but travel to Pine City to interact with other students face-to-face.

Every class I have taken through distance education requires that I write a research paper. Neither the libraries in Pine City, Hinckley, or Cambridge (which seem to contain mostly recreational books) nor America Online, to which I subscribe, have access to all the resources necessary to conduct the level of scholarly research expected by my instructors. St. Cloud State, and several other libraries around the state, seem to continue to get some books and a few periodicals, although I hear they used to

buy a lot more in the past. A lot of what the St. Cloud State "library" has seems to come from somewhere else, from everywhere else. While I thought it was a waste of time when I had to take it, the required information literacy course taught me a lot about the varieties of knowledge resources available, how I can access them, how I should critically view the information, and how I can begin to apply what I find.

I use dial access through the Hinckley Public Library SLIP connection to gain access to the statewide information system. Once connected, I type in my identification. My identification enables a number of defaults that were set when I enrolled at SCSU. I subsequently expanded my options by changing the defaults to include searching of items in the University of Minnesota Libraries (they call it the "library of last resort"). I can check my defaults easily and verify my email address, my preferred interface for searching, my preferred Interlibrary Loan delivery point (Hinckley Public Library), and my preferred library catalogs (SCSU is the default, and I have added the local public library because it's convenient, and the University of Minnesota because it seems to have everything that I can't find elsewhere). Because of the topic required for a research paper I need to write, I've decided to add the library at the College of St. Benedict, St. John's University.

I also check the other files that will be included in my search. The standard defaults for SCSU students include periodical citations, several of which include fulltext (e.g., IAC), the ERIC database (which may or may not be relevant to my topic), the Encyclopedia Britannica (which my instructor says is okay for background and links to other files but shouldn't be used as the primary source for writing a paper), Internet resources, and a couple proprietary databases paid for by SCSU. It looks like CSB/SJU has another good database that could help, but it's only available to their students. I never know whether the information I find is actually located at St. Cloud State. I assume some of the photocopies that are sent come from items they store, and I know some of the "books" come from there because of the barcode label. But with the electronic information, I never know..

SCSU has added a new database that might have some useful information; I'll contact the research consultant for assistance later

if I can't figure out how to use it or if they haven't completed the online tutorial. For a previous paper I contacted a research consultant online to provide assistance. It wasn't that I couldn't find enough information, but that I located too much and needed some assistance in resetting the search filters. I've also used the interactive desktop videoconferencing to learn how to use a new reference tool that had recently come online. Rather than just explain, the research consultant was able to show me what happens when certain operations took place. I don't use this interactive mode very often because I have to drive down to Pine City and use the Tech College's computer lab. Usually, when I need the assistance of a research consultant, I just send an email question or use the assistance form. Most of the questions seem to be answered by people at SCSU, but every now and then I get a response from a subject specialist at another library. Like the electronic resources, I'm never really sure the person I talk with on the videoconferencing is at St. Cloud State or even works there. There was an instance when I think the consultant was from the U of Mn.

I enter a few search terms in the appropriate space. I know I can use Boolean operators ("and", "or", "not", and word proximity), but the default "and" should be sufficient to get me started. I can always refine my search later. The computer tells me how many items matched my criteria. It's a rather large number, certainly more than I want to look through. I ask the computer to sort the results to show the fulltext resources first.

Because I've previously found some useful information and been pointed in some good directions, I decide to read the article from the Encyclopedia Britannica to see if I can create a more focused search. Everything in the article has already been pretty well covered by the instructor. The bibliography includes a couple of books; I'll check later to see whether they are available in the region. There is a link to a Web page, but the link doesn't work. I check the list of Web pages returned in my search and see the same title. A click links me to the site, which, in addition to links to other Web pages, includes a fairly good essay on my topic. The document has not been through what my instructor calls the peer review process, but it looks pretty good to me and has a nice bibliography that I can use. Another Web page from the list

looked promising, but was nothing more than a directory page with links to other pages. I don't have time to sort through all of this mess, so I return to the search results.

I then check the items that are available in fulltext. There are a dozen journal articles published in the last two years that look pretty good, and a book that's available from Wisconsin. I forward the fulltext of a couple articles to my email account where I can look at them later and queue a request to access the book.

I resort my search results to look at citations for items not available in fulltext. The default display is in reverse chronology, so I ask the list to be reordered by relevancy (and check scholarly as my preferred relevance criteria). Several titles (a few even have abstracts) look promising, but none are available locally. One is at SCSU, another is at CSB/SJU, and two more are at Wilson at UM; the rest I request through document delivery. A few articles are available from electronic journals on the Web; fortunately SCSU subscribes to one and I make the link to download the article to my harddisk. This should have shown up in the fulltext sort; must be a bug.

The proprietary databases available through SCSU prove to be valuable. I obtain several citations to articles that look better than those I requested previously. I make the appropriate request for six or seven of these articles. I also decide to cancel three of my previous ILL requests that don't look as good as I previously thought.

The proprietary databases available through SCSU prove to be valuable. I obtain several citations to articles that look better than those I requested previously. I make the appropriate request for six or seven of these articles. I also decide to cancel three of my previous ILL requests that don't look as good as I previously thought.

I could send an email to a mentor for hints on other places to pursue research, but I think I'll wait until after I review what I have already requested. I may already have enough. It is too bad I don't have the desktop videoconferencing from home, so I could have the consultant review use of the bibliographic management

software, but I can wait until I can get down to Pine Tech before class next week.

**I keep pushing at my own limitations and
at the limits of science fiction. That is
what the practice of an art is, you keep
looking for the outside edge.**

--Ursula LeGuin
The Language of the Night

The person in this scenario is a fairly sophisticated user. How did they get that way? Fifteen years ago, Brian Nielsen at Northwestern University wrote a paper ("Online Bibliographic Searching and the Deprofessionalization of Librarianship." Online Review 4(3):215-224 September 1980) challenging what at that time was one of the primary assumptions of librarians. He believed that in the future (and remember this was written in 1980) most end users would be conducting their own online searches. The introduction of CD-ROM databases was the opening gambit; loading external files into our online catalogs expanded the opportunities; the Internet exploded the myth of the mediator.

The most serious challenges to implementing this scenario do not come from insufficient funding, or inadequate hardware, or the rapidly changing technologies. These have a way of working themselves out. Other challenges, such as developing measures of quality and accountability and adding value to our endeavors are possible. The University of Nevada Reno, through your "strategic thrusts," has established ambitious goals. Our most difficult challenges are overcoming the limits of our visions, and our inability to deal with the enormous changes at the last minute that each of us will have to accept.

This discussion of the future only hints at what will happen with library services. It is nearly impossible to say with any certainty how users will respond to the changes and what information professionals will need to do—both will change in wildly unanticipated ways. As I have noted, our role as

educators in a community (we too often overlook the social aspects of education) will grow as technology makes us more and more remote from a tactile and sensual world. Our training in knowledge organization needs to be coupled with discipline-based knowledge representation to make digital information forms more immediate, more accessible, and more meaningful. Our background in information can serve as a springboard into communication. As Greg Farrington noted at the ACRL/LITA President's Program (ALA Chicago, 1995), we librarians need to "prepare for change whose form is uncertain but whose inevitability is sure, by rushing out and (at least) pretending to lead it."