

# Print vs. Electronic Redux

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In his *In Praise of Scribes*, a late 15th century treatise on the new technology of the printing machine, a German monk named **Trithemius** wrote, “he who gives up copying because of the invention of printing is no genuine friend of holy scripture...printed books will never be the equivalent of hand-written codices ....” He goes on to say that “writing — if it is on parchment — will be capable of lasting a thousand years; but printing — since the material is paper — how long will that last?”<sup>1</sup>

After the **Gutenberg** revolution, these fears and predictions slowly disappeared and few remember that these conflicts even existed. The enduring presence of the printed word has led information age philosophers such as **Michael Heim** to assert that a “book defines a certain way in which access to the things in the world is fostered, a certain modeling of the way things are held up to attention.”<sup>2</sup> Since the evolution of printing in the 1400s, we have come a long way not only in the form, content, typeset, and binding of printed materials, but also in the way we collect, organize, shelve and retrieve them.

Just as it seems that we have accomplished the insurmountable task of organizing the printed word, the publishing world is in the middle of another transition. The advent of the World Wide Web has changed the way we interact with information. In the publishing and library world, this next wave of change arrived in the form of the electronic journal. As journal publishers rushed to take advantage of the potential ease of access provided by the Web, librarians were left with a number of issues regarding access, storage, retrieval, and cost of the new format. While journals existed electronically in “plain text format” in the 1980’s, *Postmodern Culture*, first published in 1990, is recognized as one of the first of the new online journals.<sup>3</sup> Fifteen years later, it is estimated that there are more than 30,000 journals, magazines and newsletters available online.<sup>4</sup> The rapid advance of the electronic

journal and the fact that some are less expensive than their print counterparts has meant big changes in the way that libraries provide access to journal content for their patrons. The April 2003 issue of *Against the Grain (ATG)* was dedicated to discussing these challenges. Authors of articles in the April 2003 issue discussed the complexities of copyright and licensing, the pros and cons of electronic vs. print retention, and the impact of the transition between the two formats on both libraries and patrons.<sup>5</sup>

A review of the literature over the past five years indicates that access, cost, and education are just some of the important issues for libraries as they decide which format to retain in their collection or whether to retain both.<sup>6</sup> In the past few years, several quantitative studies aimed at examining the differences in cost and usage between print and electronic formats have emerged. These studies provide further evidence that the advantages and disadvantages of electronic vs. print formats continue to be complex and challenging. In order to get a feel for how these issues affect library employees on a day-to-day basis, we drafted an informal survey and submitted it to the following list-serves;

LIBREF-L@LISTSERV.KENT.EDU,  
CHILD LIT@EMAIL.RUTGERS.EDU,  
ILI-L@ALA.ORG,  
CANMEDLIB@CLIFFY.UCS.MUN.CA,  
and SERIALIST@LIST.UVM.EDU.

The survey consisted of a variety of open-ended questions that invited respondents to consider the ways in which working with electronic or print materials has affected them, asked them to speculate about the future, and comment on any improvements they would like to see. We had 155 librarians and auxiliary library employees respond to the survey. The majority of the respondents were from the United States and Canada. 69% of the respondents came from academic libraries, 11% from special libraries, 8% from public libraries, 3% from school libraries and the

remaining 9% selected “other” as library type. The respondents were an experienced group, with more than 45% having ten or more years of experience, 30% between six and ten years and the remaining between 3 and 6 years. Although their job titles were incredibly varied, most of the respondents stated that they had responsibility for either some or all of the collection. By using examples from our survey to elucidate the previously identified challenges, we will reveal that while much has been improved in electronic journal publishing, many unresolved issues continue to exist.

## Access

For most patrons, access to an electronic journal has never been easier. As long as the journal they want is subscribed to by their library, they can access the full text of the article directly from any desktop computer. Most libraries provide remote access to journal content and some access to electronic books as well, which, for the patron, means more convenient access to the materials they need. But, for librarians, the process of providing electronic access to those articles is much more complex than providing access to print materials. The workflow process involved in creating both print and electronic collections includes “selection, ordering, cataloging, and providing reference and instructional support.”<sup>7</sup> But supporting an electronic collection has additional complexities such as licensing issues, complicated and costly pricing models, and different modes of access to consider.

Choosing the right type of access for patrons is just the beginning. Electronic journal licensing is a much more time consuming exercise than purchasing a book or a print journal. When a print book or journal is purchased by a library, it owns the physical entity and its content. In the electronic world, however, libraries often purchase rights to access the material, rather than own it. Consequently, once the subscription expires, access to the content expires along with it. Due to this complexity, some librarians comment that the process of acquiring access to an online title can often take much longer than providing access to a print title.<sup>8</sup>

While many patrons enjoy the ability to link directly to the full-text of an article or book chapter while using electronic formats, linking brings its own set of potential disadvantages. For example, some journal publishers or database aggregators allow the patron to link directly to the article they wish to view or print, while others simply link the patron to the publisher of the content. If the patron is lucky, the publisher will recognize his or her proxy IP and allow access. If not, they may be forced to search for the paper again in the new site, register, and possibly pay for

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**Table 1: How can access to electronic journals be improved?**

Answer	No. of Respondents
Seamless access between databases from different publishers and aggregators	45
More affordable or free content	33
Stability of URLs/Better link resolvers	14
Standardized indexing between aggregators and publishers	11
Better training or educational materials for staff and patrons	9
Guaranteed access to past issues/archival content	7
More full-text content, including access to historical content	5

full-text of the article in which they are interested.<sup>9</sup> Other barriers to access for patrons include lack of proper software installed on their home desktop, expired or improperly processed user cards, or lack of knowledge about how to properly access a particular database.<sup>10</sup>

Respondents in our survey indicated that there are still many improvements that can be made to electronic access (see Table 1), and were typically in agreement with the written literature above. The largest concern among this group appears to be the lack of consistency in interfaces between the various publishers. Many felt that a seamless interface for both initial access and searching would be a considerable improvement over the current model. There was also a strong preference for standardization across many areas of electronic journal publishing including linking, controlled vocabularies, search terms, and indexing. It was interesting to note that while most of our respondents from academic libraries were in favor of IP access, special and other small libraries desired the ability to choose an access type based on their needs/budgets and felt that publishers were not being flexible enough. URL and linking problems were number three on the list, and again, many of our respondents called for greater standardization and more stability — stability not only with platforms, links and mode of access, but also stability on the vendors' part to keep their content in one database and not move them around so often.

The dilemma of ensuring future access to electronic material continues to challenge information managers, librarians, archivists, and the computer science community.<sup>11</sup> In the meantime, librarians are left wondering whether the electronic books, journals and information on CD, DVD or other storage media will last as long as printed paper or microfiche. Therefore, many continue to have hybrid collections of print and electronic materials just in case an adequate answer to this problem is never found. Many of our respondents commented that lack of permanence and access to archival content were still major barriers to an electronic only library.

### Education & Training

The complexities of granting and gaining access to electronic books and journals have also changed the skill sets needed to process and maintain these collections. This is true for both library employees and library users. While library patrons are expected to be information literates<sup>12</sup> and cultivated critical thinkers,<sup>13</sup> most do not need

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## against the grain people profile

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**NAME:** Maha (lakshmi) Kumaran

**BORN & LIVED:** Born and raised in Chennai (Madras), India. I moved to Saskatoon, Saskatchewan in 1994 with my husband. Since then I have lived and worked in three different provinces in Canada.

**EARLY LIFE:** I am the first of the two daughters and since my sister was only a year and a half younger, I always had a playmate. I was interested in sports, music and traditional Indian dance. I won certificates in Javelin, Kho Kho (<http://www.webindia123.com/sports/khokho/khokho.htm>) a game played only in India as far as I know. I also won singing, dance and drama competitions in school. I once wrote a poem which my sister took to school and published under her name. So I am not sure I can take much credit for it now.

**FAMILY:** I am now married to an English Professor who teaches at **St. Thomas More College, University of Saskatchewan**. We have a five year old son who delights us.

**EDUCATION:** I have my masters in English from **Madras Christian College, Madras University** which is where the famous **S. R. Ranganathan** did his first degree. My bachelors was also in English Literature.

**FIRST JOB:** My first job was while I was still doing my Masters. I taught English as a Second Language to students of all ages in India. Later I was asked to teach first year English courses at the college where I did my BA.

**PROFESSIONAL CAREER AND ACTIVITIES:** I have just finished my library degree. Before that I worked at three different academic libraries and one public library. I look forward to pursuing a professional career in the same field soon. I am also doing indexing work for the National Japanese Museum. Since I really enjoy indexing, I wouldn't mind a part time job in that field.

**IN MY SPARE TIME I LIKE TO:** Read newspapers, write articles, cook, play with my son and visit the public library with him.

**FAVORITE BOOKS:** *Intellectual* by **Steve Fuller**, biographies such as those of **Malcom X**, **Mahatma Gandhi**, **Winston Churchill**, *Pride and Prejudice* and other works by **Jane Austen**, **Shakespeare's** works, *God of Small Things* by **Arundathi Roy**, short stories of **Somerset Maugham**, works of **Mark Twain** — the list goes on and on.

**PET PEEVES/WHAT MAKES ME MAD:** When librarians refuse to understand each other (it happens sometimes) and get sarcastic with their comments. I really cannot stand people who refuse to look outside their own little world to learn something new.

**PHILOSOPHY:** Do your work and the rewards will come. Be true to yourself.

**MOST MEANINGFUL CAREER ACHIEVEMENT:** I started as a shelver in **Saskatoon Public Library** in 1995. That was my first real library job and sometime in my first month, I said to myself I have to get a degree and take on more challenges. I waited patiently for an opportunity and after almost nine years I was able to enroll in MLIS program at **UBC**. It was not easy to be a full-time student, part-time employee, live away from my husband and manage a 3 year old. When I finished my degree in July I was truly happy and satisfied that I had finally accomplished something. I hope to research, write and publish in my career.

**GOAL I HOPE TO ACHIEVE FIVE YEARS FROM NOW:** Be a librarian in an academic or public library setting. Manage electronic information for a library, have my own Website up and running, continue working on my blog that is just born.

**HOW/WHERE DO I SEE THE INDUSTRY IN FIVE YEARS:**

I have written another paper on the future of libraries. I believe libraries always have a place in the future: their content and format will be different and they might also look different (if everything goes electronic). But in the next five years I see the industry coming up with better strategies to archive, access distribute electronic information through out the world, especially to the developing countries that cannot afford big publishers. I also truly hope that the idea of an electronic library doesn't stop with digitizing information but it goes beyond — to keep the idea of a community alive. 🐾



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additional education to access the text of a print book or journal (unless, for example, it is a large reference book with a complex index). They just need to pick up a book and read it. Similarly, library employees have had years of experience providing access to print material. With an electronic book or journal, however, some new skill sets are required of all library employees so that they can ensure that their patrons understand how to retrieve the content of a particular book or journal. Library employees have embraced their roles as educators in order to help patrons strengthen these skills so that they have better access to information. Unfortunately, if the patron is accessing the content remotely, they must rely either on their own skills, documents created by the library to guide them through the process, or in some cases online chat reference service. As mentioned before, since there is no standardization in access, indexing or controlled vocabulary in databases, patrons who use these services need training in these areas as well. This may account for the large percentage of comments made by our respondents that many users still prefer print materials. For new students or for people who are used to print whether they are technologically savvy or not, they want the quickest, most efficient access to the material they can get. Grabbing that reference book or journal off the shelf is less of a learning curve. This is an area where, as our respondents suggest, a standard interface would help. If patrons only need to know one mode of access, it would be easier for them to learn how to efficiently use a particular electronic resource.

Advances in electronic access and the need to negotiate complicated licensing agreements are two areas where library employees may need new skill sets to perform their job efficiently.

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**BORN & LIVED:** Born in Salem, Oregon but have lived in Vancouver British Columbia since the age of 2.

**EARLY LIFE:** Mostly grew up in Chilliwack, BC (a small farming community) and was out of there and off to Vancouver as soon as I graduated. I was an actor in highschool. So when I left, I went off to attend theatre school.

**FAMILY:** Most of my family still lives in Oregon. My father has been a writer for most of his life. My whole family is very musical and loves to sing and write songs and poetry. I am the oldest of 6 siblings who are split between two families (both my parents remarried while I was young).

**EDUCATION:** I have a diploma in Stage Management from Studio 58. I hold a bachelors degree in English Literature (first class honours) and a minor in technical theatre. I am 2 semesters away from completing my MLIS at **SLAIS**.

**FIRST JOB:** My very first job was working as a clerk in a donut shop on the graveyard shift. It was horrible and I made \$3.00 an hour.

**PROFESSIONAL CAREER AND ACTIVITIES:** I am mostly self-employed at the moment. My full-time position involves managing records and developing a records index for a facility related project at Vancouver General Hospital. I also work the occasional shift at the Biomedical Branch Library for the **University of British Columbia**. Lastly, I provide information/search services for a few clients in the city.

**IN MY SPARE TIME I LIKE TO:** Spare time???? — Just kidding. In my spare time, I try to read and write, I spend time at the gym. I love to cook, and try to spend time either seeing theatre or being involved in theatre somehow when I can.

**FAVORITE BOOKS:** Thats a hard one! I am taking a class in Science-Fiction Fantasy right now and would have to say that that is my favorite genre of the moment, but it changes all of the time. I am quite fond of **Michael Palins** travel books series and enjoy graphic novels. The novels that I have enjoyed the most from my class were the Golden Compass books by **Phillip Pullman**.

**PET PEEVES/WHAT MAKES ME MAD:** Intolerance, racism, religious fundamentalism.

**PHILOSOPHY:** Whew! Tough questions. I would have to say it I guess that we are all on this planet together and we should try to recognize that and stop fearing each other and doing everything the media tells us to and try to make some changes before its too late.

**MOST MEANINGFUL CAREER ACHIEVEMENT:** I don't think it has happened yet, but I have managed to get published in two different magazines this past year and that was a big achievement.

**GOAL I HOPE TO ACHIEVE FIVE YEARS FROM NOW:** I would like to find a permanent library position somewhere in the medical area.

**HOW/WHERE DO I SEE THE INDUSTRY IN FIVE YEARS:** Five years is not that far away and yet much could happen in that time. I don't believe that we will see a large amount of difference in terms of physical space in libraries. I think that more services will become available electronically. I think that the consortium movement will grow as libraries continue to find ways to serve their patrons within their budgets.

After doing our survey, I am not sure that the electronic book will take off the way a journal has unless something is done to help people read off of a screen. Perhaps devices like the **Playstation-PSP** will be a way that people can sit with a "book" in front of the fire, but I doubt it. It might take more than five years for publishers to figure that one out. I think that library interiors might start to change. We will probably see more computer stations and less shelving for journals, newspapers and magazines which are available online. I think that the librarian will gain further importance as educator in public and academic institutions.

When I first entered library school, I was told that this was the best time because so many librarians would be retiring in ten years. That was almost three years ago, but I don't think this is going to happen in the next 10 or even 15 years particularly in Academic and corporate libraries. I think that because library schools jumped on the suggestion that the work force was depleting, there will be some kind of market saturation with all of us grads and jobs will be difficult to find. I also think that the original projections did not take into account the fact that the baby boomer generation is generally healthier, living longer and hanging on to jobs as long as they can because working feels good, and even the worst library paycheck is probably better than anything you would get on a pension (At least this is the case in Canada). This might mean that there will be more diversification of the role of librarian as us "newbies" get out there and try to make work for ourselves. The number of independent information professionals may grow because of this. It will also mean that all librarians will really need to keep on top of the latest industry and technology trend in order to survive the competitive climate. 

Library managers and administrators must look for new employees who already have these skills or provide additional training to existing employees on how to use, maintain, license and update these complex systems.<sup>14</sup> In most cases both technical and public services library employees need to understand the issues involved in electronic access so that they can properly troubleshoot problems and provide reference services to their patrons.<sup>15</sup> Although many library employees enjoy the challenges and opportunities of continuing education, the rapid change in technology also demands much of their already limited time and resources. Training for both library staff and users was another area that the librarians we surveyed thought could still be improved (see Table 1). Survey respondents indicated that locating articles within aggregator databases is still a concern due to prevailing inconsistencies between publishers and commented that if standardization is not possible, more training and support must be provided, so that they in turn can pass this knowledge on to their patrons. With declining budgets and staff, many library employees have to pay for this continuing education themselves so the more, free or low-cost training available to them, the better.

### Cost

Regardless of the format; access, education, storage and preservation all have their particular influence on a library budget. While much was written in the late 1990's that discussed the high subscription price of electronic journals compared to print, in 2000, **Carol Hansen Montgomery** began to assess other costs involved. The **Drexel University** study aimed to analyze the "operational costs associated with shifts in staffing, resources, materials, space and equipment." The preliminary results of this study concluded that the "per title subscription costs for electronic journals" was lower than the "per title charge" for print journals. **Montgomery** predicted that although electronic journals were "substantially more expensive to maintain;" as the industry matured, the processes involved would "become easier, and thereby less costly for libraries."<sup>16</sup> In 2002, **Montgomery** released a more thorough analysis of the study which demonstrated that "although an electronic journal collection results in increased costs of some activities, the advantages and decreased costs in other areas outweigh the increases." **Montgomery** warned, however, that the **Drexel** study was specific to her academic library and further study was warranted before any wide-scale conclusions could be drawn.<sup>17</sup> Library employees in our survey largely responded that electronic subscriptions were still too costly. When asked if their budgets adequately served their collection needs, 56% responded "No" and 44% responded "Yes" (though many of these said they could always use more). Several respondents indicated that they supplement the cost of electronic journals and databases with the book budget. The

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responses also seem to indicate that not all libraries are finding the transition to electronic access affordable. This may be because many libraries are still faced with keeping both print and electronic and true operational efficiencies and cost savings are yet to be accomplished, since keeping both is likely the most expensive of the three options.<sup>18</sup>

More detailed studies need to be done in this area to determine the cost differences between print and electronic books, but it is likely that the same issues will apply. For

example, print book costs include the expense of purchasing, shipping and handling, and the operational costs of processing the books. Since no equipment or digital infrastructure is required to access a print book, it is less expensive and less time consuming than electronic access. However, storing print materials can be quite expensive. As with electronic journals, it remains to be seen if the electronic book will prove to be more, less or just as costly as the print version, especially

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since the soaring popularity of the second hand book market has made print books even less costly than their electronic counterparts.<sup>19</sup> When asked if there was a future for the print versions of either books or journals, many of our survey respondents commented, that they thought that although the electronic journal was likely to surpass the print in the near future, they were not as sure about the electronic book. Many remarked that the sectional quality of textbooks or reference books lends itself nicely to digitization because small sections can be searched or printed off for easy reading, but they felt that the electronic book still doesn't work well for books in the humanities, or for fiction, because it is difficult to somewhat challenging to "cuddle up" with a nice computer screen and a cup of cocoa. Still other respondents commented that with the rapid advances we have seen in technology over the past decade, something new may be introduced into the mix that will set us off on yet another transition. Only time, of course, will tell.

### **Conclusions**

The fears that existed in **Trithemius** and his contemporaries during the onset of the print revolution still exist in some of us today about the electronic medium. We, the authors of this paper, do not want to be today's **Trithemius** and declare the death of print and or the future of electronic publishing. It is difficult, from where we stand today, to predict if one medium will obviate the other. Our survey respondents were asked if they believed that electronic books and journals were the future. Approximately 50% said yes, approximately 25% commented that electronic journals were already taking over print versions and expected the latter to be obsolete within the next 10 years. The same group also believed that the electronic book would take much longer to catch on. The remaining 25% indicated that they didn't think that print would become obsolete until access and preservation issues are resolved. For now, it seems that it is still necessary for some libraries to keep hybrid collections, and necessary for others to adapt to an "electronic only" model, but these decisions should be based on your library's needs, your user base, your funding and your administrative support. Procure all information possible about either format — its publishers, licensing agreements, user fees, archival access, your user preference and anything else that might be appropriate to your library's needs. No one knows for sure whether electronic formats, as we know them today will endure the test of time. But again, librarians also have to keep up with the changing needs of their patrons or run the risk of becoming irrelevant to their users. There are studies showing that different scholars have different preferences when it comes to formats. **Siebenberg** et al concluded in their research that "the popular lore/common wisdom that people are changing from using print journals to electronic journals is not true across the board."<sup>20</sup> Their study suggested that users' migration between formats varied depending on the subject area. This echoes the responses we received that many users still prefer print and that just as many would be happy to move to electronic only. Simply stated, until library patrons can agree on one format, it will be necessary to continue to provide some kind of access to both. 