

Racing through the Information Age without Falling Off: Address for Association of College and Research Libraries (ACRL) breakfast session sponsored by ATLA and EBSCO, March 26, 2015, Portland, OR

William Badke, Trinity Western University, Associated Canadian Theological Schools

I've been doing this library thing for about three decades now. When I started, we were printing library cards on card stock, sending them out for photocopying, then manually typing headings on them, before filing them alphabetically in card cabinets. True, there were electronic databases around, even some rudimentary online library catalogs. But the databases had to be searched remotely by information experts, and the catalogs were few and partial. Think "retrospective conversion."

Within five years after my graduation with a Master of Library Science, the World Wide Web arrived, and my own academic library had a CD-ROM catalog along with a few CD-ROM based databases. After another five years, user-friendlier online journal databases arrived, and most of our print periodical indexes were sent away to good homes.

Now look at us. Multiple databases, discovery tools, Google Scholar, and who knows what to come? Information scarcity, which characterized academia for centuries, has become information abundance. Average citizens, even students in higher education, can search for information directly. They don't need information professionals, nor instruction. We have now entered the golden age of information access, and the librarians can just fade away because their job is done.

Of course, that's utter hokum, but the new information reality does raise some fascinating and troubling dilemmas.

Too Much, Too Fast

In 1970, a mere 45 years ago, information scarcity ruled, the same information scarcity that existed in 1920 or 1870. People had access to what they could buy in hard copy – books, journals, magazines – or what they could find in a library, if they were close enough to the library to use it. Less than twenty years later, the Web released a flood of information such as the world had never before seen. And most of it was directly accessible to users for the cost of a home Internet connection or a cup of coffee and free wireless at Starbucks.

What is really significant for librarians is the fact that most of the information release happened without metadata. The Internet ignored the careful way in which librarians had described their holdings so that they could be retrieved with precision. Instead, we became dependent on search engines created by people who were also using them to generate cash, lots of cash. We have put up with advertisements that look to uninitiated users like search results; we've put up

with location tracking, with personalization of results, and a bevy of neat search features that were subsequently abandoned just when we were starting to find them useful.

Internet search engines all promise to help us manage the World Wide Web, but none of their search algorithms, in an environment of no metadata, work nearly as well as they promise they will. So essentially, we have the largest release of information the world has ever seen, with no metadata to speak of, searchable by search engines we don't trust, for a population that generally lacks the enhanced search skills they need to function well in such an environment.

It's too much, too fast, with too little thought and too much optimism. And academics weren't consulted for the most part. What is more, our students have embraced the search engine while the information literacy movement remains largely marginalized, with the single one-shot session being the predominant way that our students learn anything about handling a vastly more complex information world.

Thank goodness for academic databases that have maintained metadata and rejected personalization. But our students treat them like Google, rarely using the specialized features. Discovery tools show potential, but only if users go beyond their initial keyword searches to facet their results. Most users don't even recognize their search ability deficits. Their experience with the "one search does it" search engines has tainted them. Search is supposed to be convenient. It's supposed to deliver right away, with no fiddling. But the sheer volume of what we have to deal with can turn the simple task into a search disaster.

Sure there are some who love the serendipity of search without metadata. Every search is like tossing a fly line into a river and coming up with something new. Links take you into previously unknown worlds. When we have so much available to discover, there can be no question any longer of finding a distinct or definitive body of knowledge, so we can have serendipity without guilt. We once thought we could control and harness information. Now that it is wild and free and accessible, we simply have to let it be what it is, count on keywords and links to find what we need, and not worry about the rest.

I suppose I'm exaggerating a bit, but not a lot. Contrasted with the carefully constructed metadata systems created over the past century or more, the Web is anarchy under the control of a poorly schooled sheepdog, the search engine. Sure, we have Schema.org which is trying to do for the Web what librarians have done with metadata in their own collections, but the vast majority of websites don't use Schema. Google Scholar supports the work of Schema, but its ability to enlist metadata itself is limited.

The world needs librarians to figure out what to do with the new information environment. We've come a long way with the academic information systems that were created alongside the chaotic Web, but I see a steady erosion in the value given to metadata by the students and scholars who acquire information. Google Scholar is the search engine of choice in academia, especially in the sciences. Somehow we have to show the superior value of metadata-based databases.

Getting to Epistemology

I recently encountered a student at our university wandering the stacks, a laptop cradled in her arm. She looked confused, so I asked her if I could help. She said, "I'm not sure what I'm looking for," and showed me her screen. It was an open citation from Academic Search Premier. This citation had no PDF so she was looking in the book stacks to see if she could find the full text there. "I'm not sure what I'm looking for," was an understatement. It turned out that we didn't subscribe to the journal she was seeking, so the article was unavailable except through interlibrary loan. She had no idea that there might be a difference between a citation to an electronic journal article and a hardcopy book that she would find on a shelf.

I regularly see students, even graduate students, who can't tell the difference between a citation to a journal article and to a book chapter. I've had students describe journal database citations as "websites." Many can't tell the difference between an article and a journal. Most can't explain what a "volume" or "issue" is.

Working with graduate students, I usually get a better level of understanding of how information works, but only because graduate students are older than undergraduates and thus have a closer tie to the analog world that preceded the Internet. It's our undergraduates who form the leading edge of new wave of web-savvy but epistemology-poor students. Having been educated in the realm of Google, they have an extremely limited understanding of the publication cycle, the distinction between academic and popular literature, and the common vehicles within which academic and professional literature are published. These are the graduate students of tomorrow.

Some would say that we are now beyond traditional ideas like worrying where our knowledge comes from, or focusing on the elements that make up book and article citations. The world is changing. Take PLOS, the giant open access scientific journal publishing vehicle. Citations for it are beginning to diverge from what we see in traditional journal articles¹. Now the Open Library of Humanities is starting up, enhancing the transition to new formats for academic literature. We are going to see more and more variations on the traditional publication, each challenging what we know of citation formats.

Do users really need to understand peer review, in an era in which peer review is coming under attack as a means to promote old boy networks rather than quality and innovation? Why not evaluate everything post publication, at reader level, using common sense and intuitive grasp of what is valuable for the information need?

And thus ends academia as we know it, and we sink into a morass of information chaos. It may seem terribly elitist to argue that all information is not of the same order, but it's true. Peer

¹ E.g. Gassman NR, Coskun E, Stefanick DF, Horton JK, Jaruga P, et al. (2015) Bisphenol A Promotes Cell Survival Following Oxidative DNA Damage in Mouse Fibroblasts. PLoS ONE 10(2): e0118819. doi:10.1371/journal.pone.0118819 [where the volume number and issue number do not correspond to the 10th year of publication and the location is e0118819]

review, for all of its failings, continues to have a crucial role in ensuring that scholarly work remains scholarly. Expertise and experience create knowledge of a different order from that in a blog written by someone with a lot of opinions and no real competence with subject matter. Without a grasp of where our information comes from and why we should rely upon this source but not that one (epistemology), we fail to make the distinctions that are crucial to navigating this vast sea of information.

Learning how to Define the Research Need

The ability to define and articulate the need for information is one of the key points of the former ACRL standards for information literacy. But in practice, even up to the graduate level, student statements of their research goals are fuzzy. I have had hundreds of one-to-one sessions with students who are searching for information but have no clear idea what the product of their search is supposed to look like. They tell me things like, "I have to write a paper on Martin Luther," or "I'm looking into the topic of [you name it.]" This is telling me that *information-gathering* is their goal, not problem-solving and advancement. Writing about something (information compilation) is not the same as addressing a burning issue and wrestling with it to a solution.

Here's an example of the problem:

"I want to write a paper on the cosmetics industry throughout the world, and include the thought of two Postmodern thinkers."

"I'm writing a paper on the power, influence and history of black and white photography."

Two research queries made to me in the space of an hour, Feb. 5, 2015

There are some who argue that failing to have a clear goal is not necessarily a bad thing. Students ease into their research projects, getting to know their topic and then gradually coming to an understanding of the direction they should take. But any professor who has spent a day reading dreary, aimless papers can tell you that getting to a clear goal is an elusive dream not often realized. A delay in determining a research goal may well be that there won't be a research goal at all.

There are signs that the incoming digital generation does not major on sustained thought nor on development of concepts around a research problem. Our information age has created sight-bites, those little pieces of data that answer little questions. Thought is becoming fragmented, and our students are finding it increasingly difficult to walk all the way through a complex problem to some kind of solution. They struggle even with formulating the initial research problem statement itself.

We can provide remedial support in our reference transactions, but teaching someone how to get his or her head around significant research by setting a clear goal and following through on it until the completed project is ready to deliver takes more than reference. It takes instructors who understand how research works and have the skills to train students to do it well.

Where is this Going?

I have to admit that I've had a lot of qualms about the information age and its tendency to foster anarchy over control. It's not that I'm a control freak. It's that I'm a librarian. I've learned over the years that creating uncontrolled dumps of information without users having much understanding where it came from or how to evaluate it, along with researchers having limited skills to sustain research from statement of the problem to laying down conclusions, are recipes for the dumbing down of the universe.

We librarians may think we're important, but the prevailing notion in much of academia is that the members of the academic community, whether students or faculty, can now access information directly, without guidance, using search engines that have almost magical powers, and that researchers are perfectly capable of understanding what they are working with and achieving their research goals without help. In many academic contexts, librarians are seen as mainly good for maintaining the systems, providing the resources, and doing short sessions with students to show them how to use the databases.

For all the potential power of the information age to advance knowledge, there is just as much of a possibility that we will move into a new Dark Age. The first Dark Age of medieval Europe was characterized by a scarcity of information. The new Dark Age could well be characterized by information over-abundance and a general lack of ability to know what to do with it. We can maintain the dubious faith that our search tools will become good enough to intuitively find what we're looking for, but that's not going to happen any time soon. Even if search engines became magical in their abilities, we would still have to frame our research goal in such a way that we know what we're aiming for, and we'd have to understand the nature of the resources we're dealing with.

The belief that technology will solve the information literacy gaps in students and society is unfounded. Instead, we are finding the same problems with student research that we have seen for decades, though the problems are now exacerbated by a much more complicated information world.

The Way Forward

Academia, whether it be undergraduate, graduate, seminary, or whatever, is under stress. There is a call for more online or hybrid instruction, less lecture and more active learning. Flipped classes, project-based programs, and inquiry-based curricula abound. More responsibility is being placed on students for their own learning.

All of this is creating an increasing unease about student abilities in the areas of critical thinking and information handling. Bringing in the librarians for one-shot sessions doesn't solve the problem. So the alternatives are:

1. Forget the librarians and let students access their own information any way they can.
2. Accept an increasing dumbing down of student research ability as simply the new normal.
3. Hope that better search engines and better technology will turn the tide, making information handling simple.
4. Up the game of the librarians and faculty.

This final option is the only one that makes sense to me. Let me state this simply: "You are information professionals. You understand search, you understand the information cycle, you know how to develop research problem statements and work critically through the research process."

Sure, you might not be as strong subject experts as professors in disciplines are, though you probably know more than professors think you do. But you have an edge – you know how information works, any information related to any subject in any setting. And if you've been doing reference for any length of time, you know how to teach students how to do effective research.

I am convinced that we need to forget about maintaining our libraries. Forget about one-shots that only prove that we can't help students do better research. OK, that's a bit extreme. We may still need to do those things, but not with the same emphasis. Instead, we need to be out there in academia, proving our worth as educators, as information professionals.

We're already doing it – embedded classes, credit courses, and so on. But we have to do it on steroids. Let me offer some suggestions:

1. Build support relationships with faculty members, offering help with their own research, copyright issues, even citations. The best marketing of information literacy with faculty is marketing based on service to their needs.
2. Offer to do workshops for faculty on ways to improve student research, on the latest innovations in databases, and so on. This is challenging, because faculty have so little time, but we need to consider every option we have.

3. Look for opportunities to work on curriculum committees and other educational administrative bodies in your institution.
4. Get involved with the people who are managing courseware so that the library is not just connected to courses but the library contacts for student research support are prominent.
5. Sit down with faculty in departments and find out what their goals are for students doing research. Then work with them to develop assignment templates to address research ability outcomes.

Above all, help academia understand that competent information handling ability is essential to every student's education. Academics often assume that providing content and some measure of critical thinking with content means that disciplinary skills will follow. Yet I regularly encounter graduate students who are struggling with the information age and with their own limited research skills. We need to get involved in every teaching and learning initiative on campus, showing how we can shape students into awesome researchers.

Ultimately, I think faculty are going to have to do most of the information literacy instruction within their disciplines, embedding research ability development into their classroom instruction and student assignments. A colleague of mine, Robert Farrell, in the City University of New York library system, has developed a fascinating approach to sitting down with faculty in a department and eliciting from them what they believe to be the abilities required in disciplinary student research. These abilities are then worked into a plan for developing and enhancing them through student assignments. The advantage of such an approach is that it doesn't try to impose a library solution on faculty instruction, but rather it draws the research instruction goals out of the outcomes required by faculty themselves. The result is a set of assignment templates specifically created to develop the outcomes that faculty require. We are going to need to see more such initiatives coming from librarians.

The world of higher education is changing and it's now less what you know than what you can do with what you know that defines an educated person. Dumping content on students in an era of information overload and easy access to knowledge is increasingly becoming a lame exercise. As faculty begin questioning their own role, I have a term to share with them: *Expertise*.

The value of a professor in today's higher education is not that professor's knowledge base but the professor's expertise. What do I mean by expertise? That uncanny ability to see the lay of the land, navigate through information and make perceptive and wise decisions about it.

A student comes to a theology professor with an unusual theological belief. Expertise does not merely try to add to the student's knowledge. Expertise instead sounds something like this, "A view like yours came up in the 5th century and people pondered it for a long time before they turned it down. The main reasons were these...but in my opinion, when you go down the road you are suggesting, you run into these considerations...The question is then whether or not the

belief actually works in practice. If you believe what you are proposing, then this is what it means for surrounding beliefs...”, and so on. That is more than just knowing, it is showing a strong ability to navigate through a problem in such a way that information becomes a tool for insight and application of knowledge. Those intuitive abilities of the professor need to be passed on to students.

Many professors these days don't think much about their processing abilities, their expertise. They have been educated to deliver knowledge, not to teach students how to handle knowledge with skill. But librarians know how to do this well, and this really is our time to shine in working with faculty to enable them to develop the information handling and disciplinary research abilities that should mark today's student.

Librarians dare not fade away. We dare not fall off this wild ride and let it disappear over the horizon. We have to persevere for the sake of the whole educational enterprise.