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The Two Markets

Richard A. Lanham

Collecting Conversations in a Massive-Scale World

R. David Lanke

Social Libraries

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Reflections on Cataloging Leadership

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William A. Garrison*

Subject Access Tools in English for Canadian Topics

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Defining and Achieving Success in the Movement to Change Scholarly Communication

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Editorial

Peggy Johnson



Library Resources & Technical Services (LRTS) is a peer-reviewed scholarly journal, which means that papers submitted pass through a double-blind review process. *LRTS* is also the official journal of the *Association for Library Collections & Technical Services* and we occasionally publish papers presented at ALCTS conferences, preconferences, and programs without sending them for peer review. This decision is made based both on the content and on the interest expressed by attendees in seeing a published version of the presentation.

This issue contains four articles that have not been peer-reviewed, yet I am confident that they meet the high standards we have set for *LRTS*. Three are based on presentations given at the ALCTS 50th Anniversary Conference “Interactive Futures,” held in Washington, D.C., June 20–21, 2007. These are the stimulating and provocative papers by Richard A. Lanham, R. David Lankes, and Stephen Abram. The fourth article, a collection of presentations from a single program at the 2007 ALA Annual Conference, pulls together talks by four ALCTS leaders who offer their personal “Reflections on Reflections on Cataloging Leadership.” Sheila S. Intner, Janet Swan Hill, Regina R. Reynolds, and William A. Garrison consider their careers and offer advice for aspiring leaders; Beth Picknally Camden, program moderator, provides a brief introduction. While more informal than most papers appearing in *LRTS*, these personal perspectives and insights have much to offer our readers.

This issue offers another in our popular series, often called the “Years Work in . . .” Magda El-Sherbini reviews the cataloging and classification themes of 2005 and 2006 and the papers that addressed them. More papers in this series will appear in future issues. Cataloging (specifically subject access tools) is also the subject of Robert P. Holley’s paper, “Subject Access Tools in English for Canadian Topics: Canadian Extensions to United States Subject Access Tools.” Holley gives this important topic a thorough, historical study and an in-depth analysis. *LRTS* publishes papers that address theoretical, intellectual, practical, and scholarly aspects of the profession of collection management and development, acquisitions, cataloging and classification, preservation and reformatting, and serials. Scholarly communication is a significant area of concern for most of these professional responsibilities. We are excited to publish “Defining and Achieving Success in the Movement to Change Scholarly Communication,” by Joyce L. Ogburn, which addresses this critical theme.

The last two papers in this issue appear in the section “Notes from Operations.” While describing real-life problems and practical solutions, these are much more than “how we did it good” reports. The papers are “Improving the Flow of Materials in a Cataloging Department: Using ADDIE for a Project in the Ohio State University Libraries,” by Melanie McGurr, and “Using Comparative Online Journal Usage Studies to Assess the Big Deal,” by Cecilia Botero, Steven Carrico, and Michele Tennant. In both papers, the authors describe how they approached often universal challenges through careful analysis. Their projects have applications beyond the individual libraries in which they were implemented.

If you are enjoying and learning from the papers you read in *LRTS*, I would like to hear from you. If you have a topic you would like to see addressed, let me know—or write about it and submit a paper.

The Two Markets

Libraries in an Attention Economy

By Richard A. Lanham

If we live in an attention economy, where it is not information that is in short supply but the human attention needed to make sense of it—and we do; if librarians have always played a central role in organizing this attention—and you have; then why is it that Google seems to be eating your lunch? One way to frame this question is to discriminate more clearly than we usually do between the two markets: the free market of stuff and the free market of ideas.

My dear friend and UCLA colleague, the late David Mellinkoff, used to recommend two rules for giving an academic talk. First, “The ideal length for a one-hour lecture is fifty minutes.” Second, “Don’t tell them more about snakes than they really want to know.” I will do my best to follow David’s rules, but if you have “markets” and “economy” in your title, you are deep into snake territory before you begin. I can only hope that my talk will be, as Mark Twain said about Wagner’s music, not as bad as it sounds.

In preparing to speak to you, I did a little homework about your organization and its history, and about the problems that libraries face today, problems including the World of Google. I still wondered, though, whether I knew enough about your work to be of use to you, so I invited a friend to lunch who knows more about the Internet and about libraries than anyone else I know. I was going to talk, I told her, to a group that included catalog librarians.

“Ah!,” she said, “Catalog librarians are the coolest people on earth—they rock!”

“Well,” I asked, “what about Google?”

“They know more about Google juice than anyone else around,” she assured me. This praise made me more apprehensive than before. I hope it will not endanger our budding friendship if I confess that I’m not sure just what Google juice is—though at my age I don’t suppose I have enough of it left to worry about. Nor do I do much rocking these days, except in a chair. We do, however, share at least one common concern, and that is the relationship between two kinds of market.

These two markets are familiar to all of you; they are the reason libraries exist. First, we have the free market of goods, what we usually mean by a market. The price system regulates it and in it a simple rule prevails: if I sell you a cake, you have it and I don’t. The second market we may call, for now, the free market of ideas: there a different fundamental rule prevails. I can sell you a cake, or an idea, but I still have it. I can digest it, in fact have already done so, but I still have it, and can keep selling it again. Cakes in this second kind of market, the economists, with their gift for the lilting, poetic phrase, call “non-rivalrous goods.” Libraries have, traditionally, existed to provide a conduit between these two markets. You deal with books as physical objects, select, buy, catalog, and store them, and when need be sell them as well. You then make available what

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This is the published version of a presentation given at the ALCTS 50th Anniversary Conference “Interactive Futures,” held in Washington, D.C., June 20–21, 2007. The author pursues arguments he developed at greater length in his book *The Economics of Attention* (University of Chicago, 2006).

they contain—their nonrivalrous contents, human information—free, or as nearly so as possible.

These two markets have always rubbed along together with a good deal of friction. Copyright, which is usually reckoned to begin with the English Statute of Anne in 1709, made matters worse by taking written texts from the free marketplace of ideas and, because they were embodied in physical books, treating them as property, taking them from the domain of nonrivalrous goods and making them into a rivalrous good. Actually, the statute did not transmute 1 kind of property into another; it just granted a fourteen-year license to pretend that the content in the book was the same thing as the physical book. When you call this license “intellectual property,” confusion between the two markets is guaranteed and, in the law, it has flourished as the bay tree.

Now that alphabetic notation has migrated from the printed page to the digital screen, the confusion is worse because the difference between the two markets is much clearer. Digital expression is the natural medium for the marketplace of ideas; there is no physical substrate to mislead you. The cake emits its native aroma: you can give it away, borrow it, consume it, store it. The response of the copyright bar, and its institutional clients, has been clear. No, no, no! Intellectual property is the same kind of property as physical stuff. one market, not two.

You all know better. The struggles and confusions between these markets provide your daily bread. The copyright lawyers can pretend there is no problem, professors like me can talk bravely about these two markets without really thinking through their differences. But you all have to act, living forever between the shifting tectonic plates of the two markets. All your problems, in one way or another, grow out of this tectonic unease, from budget cuts—because, in the computer age, administrators think nobody needs to buy books anymore—to the unbudgeted seminars you have to give in copyright law.

Somewhat We Must Do

I used to teach Shakespeare for a living, and your predicament reminds me of a scene in *Richard II*. Richard, the talkative, profligate king has gone off on a feckless errand to Ireland, where he continues to strut and posture and run off at the mouth. He leaves the kingdom in the charge of the Duke of York, a sensible responsible man who finds himself in Berkeley Castle without an army to defend it. Along comes Bolingbroke, who is to become King Henry IV. He has been done out of his patrimony and presents himself before the castle to reclaim it. The castle has come to represent the kingdom, and he asks to be let in. If not, he'll bash the door down. What is the Duke of York to do? Here's how he describes his predicament:

If I know how or which way to order these affairs,
Thus disorderly thrust into my hands,
Never believe me . . .
Yet, somewhat we must do.¹

The allegory will be clear to you. Bolingbroke is the seemingly inevitable, Googled future, marching threatenly outside the castle. King Richard represents the professors and digerati who can talk forever about how inevitable the digital future is and whether that future has come. And the Duke of York? Well, obviously, that is your part. You are the defenders of the library. Somewhat you must do and every day. What happens in the play? York lets Bolingbroke into the castle, but he has great misgivings about what will happen after he does. Misgivings that perhaps you share.

What you need as you continue to play this troubled part, I think, is a clearer understanding of the two markets and the changed relationship in which they now find themselves. I've been trying too, one way or another, for the last decade to arrive at such an understanding, and I've concluded that it requires thinking about our economy in a new way, as an economy of attention.

Before I spell out what I mean by this, though, I must take time out for full disclosure. I have a dog in this fight. If you ask what, in the free marketplace of ideas, corresponds to the price system in the free marketplace of goods, the nearest answer I have come up with is persuasion. The discipline that has from the Greeks onward studied persuasion is formal rhetoric, and—conveniently enough—I've spent much of my academic life studying just this. (Perhaps I should observe parenthetically that the word “rhetoric” has not always been a synonym for deception. For most of its life, it has described the training in the word that has formed the backbone of western education for 2,500 years.) You might even, if you were feeling raffish and your career was no longer at risk, define rhetoric as an economics of attention, and that would make me a kind of economist.

The Age of Fluff

In the economics of attention story, it helps if we begin at the beginning. It was nicely encapsulated by a young businessman quoted in the *Wall Street Journal*: “My dad always said to me, ‘You've got to dig it, grow it, or build it; everything else is just fluff.’”² There you have it—the three ages of the economy: agriculture, where you dig and grow things; the industrial revolution, where you build things, physical stuff; and, last and current, the Age of Fluff. What do you do in the Age of Fluff? How do you get from Stuff to Fluff?

The Age of Fluff is, in fact, the Age of Information. Here is how the management philosopher Peter Drucker describes it:

The basic economic resource . . . is no longer capital, nor natural resources . . . nor “labor.” It is and will be knowledge. . . . Value is now created by “productivity” and “innovation,” both applications of knowledge to work.³

So much for Stuff. Knowledge, information, is an altogether fluffier substance. Yet it is fundamental. Here is the late Walter Wriston, who was the chairman of Citibank, describing this transformation:

The world desperately needs a model of economics of information that will schematize its forms and functions. But even without such a model one thing will be clear: When the world’s most precious resource is immaterial, the economic doctrines, social structures, and political systems that evolved in a world devoted to the service of matter become rapidly ill-suited to cope with the new situation. The rules and customs, skills and talents, necessary to uncover, capture, produce, preserve, and exploit information are now mankind’s most important rules, customs, skills, and talents.⁴

Let me replay that last sentence: “The rules and customs, skills and talents, necessary to uncover, capture, produce, preserve, and exploit information are now mankind’s most important rules, customs, skills, and talents.” That pretty much describes what you all do as librarians, doesn’t it? However this economy plays out, I can’t think you’ll be out of a job. You’ll be at the center of things.

Behind this information revolution stands a deeper one. Let me quote Jeremy Campbell’s description of it:

The view arose of information as an active agent, something that does not just sit there passively, but “informs” the material world, much as the messages of the genes instruct the machinery of the cell to build an organism. . . . Thus information emerged as a universal principle at work in the world, giving shape to the shapeless, specifying the peculiar character of living forms and even helping to determine, by means of special codes, the patterns of human thought. . . . Evidently nature can no longer be seen as matter and energy alone. . . . A third component is needed for any explanation of the world that claims to be complete. To the powerful theories of chemistry and physics must be added a late arrival: a theory of information. Nature must be interpreted as matter, energy, and information.⁵

When you interpret nature as information, Stuff and Fluff change places. The real world becomes a “printout,”

a world increasingly created by digital design. For when this reinterpretation of nature as information came along, the digital computer came along too, just waiting to express it. The computer, by the way it works, through an informing code, embodies just the same form/content shift we have applied to nature itself. The computer is a knowledge machine, a system of cultural memory, but of a particular sort. Like the genes, it stores information in code. The code is the fundamental content, the “real” stuff. The physical world becomes just a series of printouts. A fundamental change occurs about how we think of the world; figure and ground change places. From this change much follows, as you all will have noticed when you try to hold books and databases together in the same budget.

Packaging

The earthquake that has created the tsunami of information we’re drowning in has been this combination of a new way to look at nature and a new means of expressing it. But now we must take the argument one step further. We must remember that information never comes without a package, as pure truth, *la pur’ e sancta verita*. We always have to package it somehow, if it is to make sense to us. Packaging tells us what to expect of the contents, what kind of attention to pay to it, what kind of message the message is. You don’t have to package a rock to kick it. But you have to package information somehow if you mean to transmit it. And this packaging will always, to some degree, carry a persuasive charge. If a message is to mean something to you, you must be told what kind of attention to pay to it. The word we usually employ for this persuasive packaging is style.

This lesson was taught by the artist Christo Javachef in one of his early wrapping exercises. (Christo, as I am sure you all know, was a wrapper, but in the Christmas-present sense of the word, not in the thump-thump music sense. He went on to wrap big objects like the Great Barrier Reef and the Pont Neuf in Paris—but even great men have to begin small.) This early work was called *Wrapped Boxes* and it emerged from a design class that he gave at Macalester College in Minnesota. The class wrapped one hundred boxes in plain brown kraft paper and tied them with ordinary twine. They then mailed them to members of the Walker Art Center’s Contemporary Arts Group. Twenty members fell into the trap and unwrapped the box. Inside was a note from Christo:

The package you destroyed was wrapped according to my instructions in a limited edition of a hundred copies for members of Walker Art Center’s Contemporary Arts Group. It was issued to commemorate my “14130 Cubit Feet Empaquetage 1966” at the Minneapolis School of Art.⁶

Aha! You've destroyed a priceless work of art, which, sold on Ebay, might have paid for a semester at college for one of your children. A typical piece of avant garde postmodern nonsense, you might say. It's actually just the opposite, a piece of straightforward didacticism of the sort the arts flatter themselves they have long since outgrown.

So what's the lesson taught? Wrapping matters as much as the content. Don't despise it. Don't think it equals deception. If you have unwrapped the box in your zeal to find out the "reality" which is inside, you have exhibited exactly the kind of behavior Christo's course in "design" was trying to counteract, a belief that content is everything, that the "content" is the only "content." A good lesson for a course in "design" because design is all about wrappings, all about style. Design tells us how to look at the world of physical stuff, what kind of attention to bestow on it. Christo was saying that, in an attention economy, style is Stuff, not Fluff. Style and substance have traded places. Another big lesson.

In this reversed world, brands really matter. How much is the Coca-Cola brand worth? \$70 billion was the last estimate I remember. BMW buys the rights to Rolls Royce and gets not just the car design but the famous name. In business after business, the brand has become the central core of the enterprise; making the actual objects can be outsourced wherever convenient. As CEO, you may not even know where your product is made, much less have visited there. Your real job is managing the brand. That's where the power lies. The Stuff is still there but it is the Fluff that really matters.

Lest you think that libraries stand distant from this reversal, read the OCLC's report, *Perceptions of Libraries and Information Resources*.⁷ The consultants engaged to report on the current state of the library conclude that libraries need "to rejuvenate their brand." You see this brand awareness everywhere you look. What else is the celebrity culture that mesmerizes so many people all about? What else is MySpace all about? I did some work for the J. W. Thompson advertising agency last summer, and those folks were talking about the MySpace phenomenon as "personal branding"; they look at YouTube and the blogosphere as all parts of the same search for "personal brand awareness."

Such awareness leads us to another reversal. There have always been two kinds of self in western thought: the social self, the role that we play in the world; and the central self, the "real us" that resides somewhere in the middle of the head. To condense a book-length argument into a sentence: alphabetic notation and the written literature built upon it fostered, if it did not invent, the central self. The central self is the bookish self par excellence and it has dominated western thought since the West became literate. Now that self, along with the book that fostered it, is changing. The social self is moving into the foreground. Not books read in private, but online conversations, establish the tone, the style, of the self.

Secondary Orality

Students of digital expression have for a long time prophesied the end of print. The visual image will triumph over the word. We'll communicate with voice and image. But as soon as you get on the Web, you'll notice that print has not vanished. It is everywhere. But it is also everywhere conversational, oral, in its habits of expression. It is a mixture of oral and literate, the mixture Father Walter Ong called "secondary orality."⁸ He uses the term to describe a world in which literacy, reading alphabetic notation, has come upon the scene but a world that still preserves the habits of mind of a culture before writing was invented. The world of classical Greece, Plato's world.

In a purely oral world, a world without writing, attention is everything. Conversation is everything. Your personal brand is the only self you've got. Since there is no writing, no external means of preserving the culture's vital information, and your selfhood, you have to keep talking, or both culture and self will be lost. Such a culture will not converse by analytic reasoning, through subordinated propositional categories, but in an additive, redundant, long-winded way, like Fidel Castro giving one of his four-hour speeches. It will connect things through links, by analogy or association. Just as happens on the Internet. Just as happens with all the people you see around you talking on their cell phones. Stop talking; stop existing.

Father Walter Ong described secondary orality as occurring when the classical Greeks moved from an oral culture to a culture built on the alphabet. Now we are moving in the other direction, back from alphabetic notation into a new kind of orality. And the Internet embodies this backward movement.

Where did these reversals come from? What caused them? Cast your minds back, if you can, to that wonderful economics class you took in college, the class in which you learned that economics is "the study of how human beings allocate scarce resources to produce various commodities."⁹ But if we live in an information economy, it must be misnamed, for information is not a scarce commodity. In fact, it is not a commodity at all. It belongs to the second of the two markets I talked about earlier, not the first. And we are drowning in it. What is scarce is the human attention needed to make sense of the information. Again, you don't have to move an inch from your accustomed world to understand this scarcity, since supplying this attention, and directing it, is what you do for a living.

When you conceive of nature as information, you are led to an economics different from the conventional one and its goods market. You are led to the attention economy in which we find ourselves, and the "nonrivalrous" market in which it works.

If we are surprised by this change from one kind of economy, one kind of market, to another, we've only ourselves to blame, for the artists have been telling us about it for the last one hundred years. It wasn't only Christo with his *Wrapped Boxes* who was trying to tell us that art had changed its domain, that art was to be defined not as a set of objects but as a way of paying attention. This was Marcel Duchamp's message, too, with his famous urinal (to tell you more about Duchamp's work really would be too much about snakes). Pop artists painted the way we paid attention to things. Andy Warhol made a fortune out of this insight. It was the message of all the artists who have exhibited piles of bricks, bottles of urine, and hunks of cow pickled in formaldehyde. Art was not masterpieces of form but ways of seeing. The value in art, what we used to call the "beauty," lay not in the object but in the attention brought to it.

Interactivity

You can find, in all the arts since the modernist explosion, beginning points for the changes the attention economy has brought with it. Let me pick out just one, the Café Voltaire, which the Dada artist Hugo Ball and his mistress Emmy Hennings founded in Zurich in February of 1916. The Café's sole purpose, according to Ball, was "to draw attention, across the barriers of war and nationalism, to the few independent spirits who live for other ideas."¹⁰ The main "other idea" to which they were trying to draw attention, or at least so it seems in retrospect, was to break apart the convention of the silent and respectful Victorian audience. Outrageous skits were performed on stage, and even more outrageous nonmusical sounds offered as musical interludes, all intended to outrage the audience and provoke it to shout nonheroic epithets and throw things, which it did. The audience became part of the performance.

Thus was born "interactivity." It grew, in the sixties, into the more familiar ground of "Happenings" and other kinds of interactive drama, and from there to the extraordinary interactive afterlife that popular fiction now attracts. I am sure there are "Trekies" here today who live in the world of *Star Trek* as participants as much as observers. If any of you watched the TV show made from the auction of the *Star Trek* costumes and models, you will know the power of this attachment. The astronomical prices paid for artifacts from the show reminded me of how medieval churches bid for the bones of the saints. In a more contemporary application, some of you will have noticed how the advertising business is changing, calling on all of us to join in making ads as well as wearing them on our clothes.

Or some of you may have come across the extraordinary number of Web sites devoted to the television show *Lost*. Viewers become authors as they write new storylines deriv-

ing from the broadcast episodes. The writers for the episodes sometimes adopt these new storylines into the broadcast episodes, so that *Lost* becomes a kind of wikisoopera. The same kind of fictional elaboration has happened to the Tolkien books and movies, and more recently to the Harry Potter books. If you Google just one Potter character—Severus Snape—you get half a million hits. There are articles about him, songs about him, he has—unless I've got my characters mixed up—3,300 "friends" on MySpace. In all of these derivative fictional universes, people dress up in the costumes of the show and come together in live meetings. And now, if you like to read Dickens, you can go to the new "Dickens World" theme park opening in the Chatham dockyards in London. The logical culmination of all this interactive fiction is, of course, the massively participant—I think that is the right term of art—"Second Life."

In "Second Life" you give free rein to your social self, or the social self that you have always wished to be, by creating an avatar. It is the ultimate participatory drama, the Café Voltaire dream come true, a new chapter in western utopianism. And it is, too, the ultimate stage of the printout reality created by the digital computer. For the "enabler," as the psychotherapists like to call such things, for all this fictional reality is the Internet. The Internet is a pure economics of attention. The only economic reality there, as the cliché now has it, is eyeballs. You all will know about "Second Life" since libraries now have established colonies there, so I need not speak more about it.

The Internet thus gives us a good way to focus on just what an economics of attention implies. To begin with, there is the inexhaustible supply of cake I talked about earlier. The Internet embodies one of the two markets I began with, a free market of ideas, where you can give away and keep at the same time. Thus even if Google is eating your lunch, your lunch is still there. There is even, as you all are finding, more of it than there was before. (This is clear in that remarkable report commissioned by the Urban Libraries Council, *Making Cities Stronger: Public Library Contributions to Local Economic Conditions*.)¹¹ Economists talk about the "tragedy of the commons" in which property owned in common becomes abused and exhausted because there is no single owner to preserve and conserve it. On the Web, this tragedy becomes a "comedy of the commons" where the more you share the better things get.

The attention economy recalibrates some of the major questions of western thought. As everyone now knows, for example, the Internet democratizes expression. Everybody owns a printing press and a newspaper (we now call this combo a "blog") and can contribute to the cultural conversation. You can rage about politics or religion, or join in the fascinating debate about whether the Hispano-Suiza automobile relocated the magneto to the firewall in 1927 or 1928. But there is a flip side to this. Much of traditional eco-

nomics has been devoted to how you distribute the goods of the world more equally, how you democratize the blessings of modernity. You simply can't do this in an attention economy. When Andy Warhol said that in the future everyone would be famous for fifteen minutes, he was, in the ironical mode he often employed, calling attention to this impossibility. A fame in which everybody has an equal share isn't fame; it isn't even notoriety. Fame requires—no point in hiding it—invidious comparison. Achilles was just a better warrior than the other guys; if you doubted it, just try to fight the Trojans without him. When you start talking about the “winner-take-all society” as a recent book by Frank and Cook has done, you've simply stumbled across one of the basic rules of the new kind of economics.¹² Think of all the changes in social equity implied by this continual oscillation between the centripetal and the centrifugal gaze, between staring at the celebrities at the center and saying, from where we stand on the periphery, “Wait a minute! I want to say something here!” And there is a dark side to this oscillation. People commit mass murder just to get their time on television, to prove that they exist by killing others and then themselves. Or, on a yet larger stage, terrorism wages a war that makes the old metaphor of a “theatre of operations” no longer a metaphor, makes theatre the principal weapon of war. Here we have to consider once again the relationship between the two kinds of market that figure in your life and mine. Important to do, but not easy.

Or consider another deep change in the Web-based attention economy. From Plato onward, the west has been suspicious of dramatic reenactment. Plato, you will remember, banished the artists, by which he really meant the poets, from his ideal Republic. From then on, we've carried in our hearts what my University of California colleague Jonas Barish, in a great book called *The Antitheatrical Prejudice*.¹³ We're scared of drama, just as we're scared of style, of self-conscious artifice of any sort. It is hypocrisy, the enemy of sincerity. But in an attention economy we finally have to outgrow this prejudice. The wrapping, as Christo pointed out, is often as important, and as sincere, as the contents. Now dramatic reenactment is everywhere. It is the foreground, not the background. The Greeks knew this, of course: *O kosmos skene*, they exclaimed. All the world's a stage. And the Middle Ages knew it as well. They knew that the world here below was but a drama to try us out, a printout for the code we would find only in Heaven. But we've always, all of us, kept forgetting this half of human experience, or demonized it into “hypocrisy.” If you do this when you're looking at the digital screen, you have to dismiss most of what you see. Not a promising way to go. Digital expressive space is radically dramatic. The native identity there is fictional identity—the whole world becomes participatory drama.

And so does conceptual thought itself—conceptual thought, which is the great victory, the great accomplish-

ment, of the printed book. The printed book shut out much of the world—no voice, no color, no movement—to concentrate on what words could do by themselves. And what they do best by themselves is think, pursue propositional thought. Now this is pursued in a different way, dramatized, visualized. We're witnessing the dramatization of conceptual thought. Let me use Father Ong's scholarly style to point to the change:

Readers whose norms and expectancies for formal discourse are governed by a residually oral mindset relate to a text quite different from readers whose sense of style is radically textual.¹⁴

That residually oral mindset is the mindset we find in the attention economy of the Web. Economists in the world of Stuff argue that productivity comes from competition. The residually oral mindset, unlike a bookish mindset like mine, is an intensely competitive one. On the screen, word, image, and sound compete for your attention. That is the primary kind of competition. The digital expressive space is not fixed but dynamic, not two-dimensional but radically three-dimensional. The primary navigational skill is spatial awareness, not conceptual agility. This makes for a different kind of reading. Let me just speak for myself here, but perhaps it applies to you and your business as well: I try to understand this different kind of reading but I find it very hard to get used to. We've educated (I hope that's the right word) at least one generation now that is used to this volatile mixture of word, sound, and image. They pay a different kind of attention to things, a kind that earlier generations—brought up on monopolistic print expression—find hard to understand. I retired from teaching a dozen years ago, but if I were still doing it—I tell you true—I would not know how to do it. I'm too much a creature of the book.

So we've had a revolution in cultural expression. But, it may help to realize, it is not one that repudiates the past but instead tries to recover it. The first great change in western expression was the Greek adoption and adaptation of the Phoenician alphabet. An oral culture became a literate one, with all of the changes that come with this fundamental leap in human life. But the written word was still, for the most part, read aloud, performed. That changed somewhere about the year 1000, give or take a couple of centuries, when scribes began to leave space between words, and to mark punctuation. If you don't think this was a big change, look at an early Greek or Latin manuscript written without space between words, sentence division, or any other kind of punctuation. Reading such a manuscript meant learning to perform it like a musical score. With sentence-division, space between words, and punctuation, you could read silently, to yourself, right off the bat. You had become fully literate. Then came the printed book, which invented a new

distribution system to serve the fully literate reader. And that is when the librarian ceased to be a protective curator and took on the job of democratizing literacy by lending books out.

Now, all of these changes have been recapitulated. Books have regained their voice, their oral performance space, with the advent of audio books. The oral world where “people, young and old, did not habitually read books either for instruction or for amusement” now returns, and that brings with it the power of immediacy as well as the diminishment that we bookish types feel so keenly.¹⁵ Now that we have a digital platform from which to view the printed book as an alien object, it has provoked a new interest, and courses in the history and structure of the book have appeared in many places. We have not renounced our history of expression, that is, but tried to recover and remix all its powers. We may be confused and embarrassed by all this, but it is an embarrassment of riches.

The Great Age of Books

And where does this printed book find itself amidst this plenty? As all of you will know so well, we are in a great age of books. According to the latest, recomputed, Bowker survey, there were 290,000 new releases in 2006. The problem is not that there are too few books published but too many, too many for us to buy, shelve, read. But do people read them? You all will have the numbers about readers’ habits at your fingertips. I simply read headlines like one that announces a first printing of twelve million copies for the forthcoming Harry Potter novel. I simply note what a wonderful time it is for readers of all sorts. You may look down upon J. K. Rowling—though I don’t; I think she deserves our best thanks—but the number of “serious books,” as we professorial snobs like to call them, also appear in record numbers. (My “Must Read” file, what I think of as my Guilt Portfolio, grows by the day.) Publisher backlists, too, have become part of our feast, through print-on-demand. And now has come the greatest miracle of all for readers like me, who like to own books that are important to them, the globalization of the second-hand book market through sites such as Amazon and ABE.

So, though it may not seem like it, we are in a great age for the book. The problem for bookish people, and the reason why we complain so much, is that we are in a great age for every other kind of cultural expression as well. Although the classical music world whines too about its market share, there has never been so much classical music available on recordings and so cheaply. (I just bought the complete works of Mozart on 172 CDs. Good recordings, some of them quite good indeed. Original instruments. Good sound. Price: \$110 for the set. A genuine, expletive-deleted,

miracle.) Or, if you fancy popular music, DirectTV’s music channels will bring its history to you, nicely divided into decades. Or think of the way film has regained its history in the last couple of decades. All the rarities of the art-house world now there on Netflix, waiting in your queue for home delivery.

The attention economy is still unregulated and so competition is fierce. We are seeing the generative power of real competition, of what happens when the consumer comes first, and we are feeling the pains that accompany this kind of competition. And, as Adam Smith commented in *An Inquiry into the Nature and Causes of the Wealth of Nations*,¹⁶ we are seeing that when business competitors get together, the first thing they talk about is weakening the competition. So Google pays \$1.65 billion for YouTube. A lot of dough, you think? They recently paid \$3.1 billion for a Web company called Double Click, which makes ads appear faster on the screen. So, too, Viacom files a billion-dollar lawsuit against Google for what it is doing on YouTube. And so all the other lawsuits that we read about every morning in the newspaper. Anything to avoid the competition.

How did this happen? Why these vast sums paid for what are conversational spaces in the ether, companies with practically no physical assets, no connection to the Stuff economy? Because, in an attention economy, the value has migrated to the cultural conversation. That’s where the money is. The Fluff has become the Stuff. We are now deep into the subject of subjects for our discussion, copyright and intellectual property.

Intellectual Property

I have a dog in this fight too, so let me speak from my own experience. For most of my orthodox career as an English professor I have had a moonlight job as an expert witness in copyright cases. Interesting job, well-paid, a periodic breath of fresh air from the relentless high-mindedness of academic humanism. The most interesting case I ever worked on was the one that initially I knew the least about: Barbie dolls. When I first started work on the case, I went to a toy store to see what one of these Barbie dolls looked like. I asked the lady at the counter if they stocked one of these girls’ dolls called “Barbie.” She looked at me as if I was crazy, which in that particular context I certainly was, and then smiled broadly, waved her hand to one side of the store, and said “Follow the pink!” That whole side of the store was pink, and I was off on my adventure.

This case was about a pop song called “Barbie Girl,” which I am sure that all of you, being persons of broad general culture, will remember. (Since I cannot carry a tune in a bucket, I won’t try to sing it for you. I could have shown you the video of the song, which was kind of fun, but the

letter of engagement your organization sent me for this lecture insisted that I obtain permission for any images I showed you and I was not about to ask Mattel, for reasons apparent in a minute, for permission—especially since I was not supposed to have the video anyway.) “Barbie Girl” was the lead song on the first album by a Danish pop group called Aqua. Mattel, which of course makes Barbie, did not object to the song in Europe, but when it was released in the United States by the Music Corporation of America (MCA) and made the charts, Mattel brought suit against MCA. It was not a copyright action, but one charging violations of trademark and trade dress. The album, for example, used the color pink, which of course Mattel owns. But the real offense was the depiction of Barbie. In the song and video, she was a light-hearted party girl and worse yet—can you imagine this for a Barbie doll?—she said that people liked to undress her. Mattel claimed she had been slandered. She is really a very well brought-up girl, heavily involved in charity work, never spends much on clothes, and is studying at night to be a public-interest lawyer. (I’m exaggerating but only a little.)

Here’s where I came in. I was asked, by MCA, to trace Barbie’s real character. She was born, it turns out, as a sexpot cartoon character named Lilli in the German newspaper *Das Bild*. From the cartoon character was made a sexpot doll, also called Lilli, which was sold as a, well, sexpot toy for men. Ruth Handler, one of the founders of Mattel, saw it in a shop window in Switzerland, and had one of the great ideas in American retailing. She would get the doll copied in Japan and sell it, not to horny men, but to little girls. The rest is—profit. Barbie was not, never had been, a miss goody two-shoes. Well, who’d a thunk that?

The lawyers I was working for couldn’t figure out why Mattel brought the action. The song, though successful, didn’t really make a lot of money, and the claim that Barbie’s character had been sullied was absurd. Mattel is famous for vicious litigation to protect their intellectual property in Barbie but they usually sue the defenseless—someone who depicts her on a Web site, a playwright who uses a Barbie in a play, a Barbie-collector magazine. The Music Corporation of America is not defenseless; sue them and they fight back. Why bring this lawsuit?

The real reason emerged in a sentence in the plaintiff’s brief: “Anyone who wants to dance with Barbie will have to ask us first.” I learned from this remark what Mattel had always known: Barbie’s value lay not in the physical doll or even in all her gorgeous clothes. It lay in the cultural conversation she provoked. If you wanted to enter that conversation, you had to ask Mattel’s permission first. They owned, they claimed, not only the doll, but what people said about the doll. Now perhaps you do not know that the cultural conversation provoked by Barbie is immense and, as I found, immensely interesting. (I am not speaking ironically;

the subject merits a book in itself.) It leads into all the major areas of American popular culture.

Mattel knew what I had not until then had the wit to see. In an attention economy, value resides in the cultural conversation. That’s why companies like Google pay those seemingly ludicrous sums for what are electronic conversation pits. That’s why YouTube has an audience of 63 million. (At least it did when I wrote this—doubtless much more now.) A journalist wrote about this extraordinary statistic: “What’s so unique about YouTube is that most of the content on the site is this conversation between people.”¹⁷ That conversational center is what makes Wikipedia so interesting a phenomenon. I’ve heard a couple of librarians make snooty comments about Wikipedia’s reliability but they miss the real point. Wikipedia has made encyclopedic wisdom into a cultural conversation. It works from the bottom up, not, like Britannica, from the top down.

Stuff to Fluff

Once again, in an attention economy, value inheres in the cultural conversation. That shift, from—to use the rhyming terms of which I am so fond—Stuff to Fluff, explains a lot of headlines which otherwise seem quite loony. Everybody, not only Mattel, wants to own part of the conversation, and if they have to sue every one of their customers to stake their claim, as the music industry is doing, then that’s what they will do. Owning the conversation is not the same thing as owning a Barbie in her form-fitting nightclub singer gown. Different rules apply, and not only First Amendment ones. The conversation is part of a different market and that market is part of a different kind of economy.

If you are to survive in the present media storm, you must understand these two markets and how they differ. I’ve just sketched a few of the changes, of the inevitable abrasions as these two tectonic plates rub against each other. The Stuff world is not going to go away, nor are the books which, for us, are a central part of it. Books got there first, and that confers a big advantage. But neither can we map the Stuff rules onto the Fluff world, book rules onto electronic databases. The essential knowledge now is not a body of facts about either domain but a skill, a poise of mind, that allows you to understand both kinds of markets, both kinds of economies which create these markets, and if not to hold them in your mind simultaneously, at least to toggle between them adroitly if and when you need to.

The OCLC report cautions that “the library brand is dated.”¹⁸ Well, sure, in some ways it is. But who better than librarians to help us find our way both in the infinite world of digital space and in the finite world of books, and especially in how the two are related? Who has pondered longer the physical market of books and the attention market of

ideas or worked longer to hold them together in a single poise of mind? If you seek a central theme for your new brand, that poise of mind should be it.

Of course dwelling in this unstable world where we oscillate from one kind of economy to another is disorienting. It makes all of us dizzy. There is a fundamental competition between two kinds of market, between two kinds of economy, and we are not used to thinking about the two clearly and about how to move effectively between them. But who does it better than libraries and librarians? Who does it better than all of you? If you are trying to redefine your brand, to tell the world what business you are really in, concentrate on the talents and skills you possess. Let me quote yet again Walter Wriston's description of them:

When the world's most precious resource is immaterial, the economic doctrines, social structures, and political systems that evolved in a world devoted to the service of matter become rapidly ill-suited to cope with the new situation. The rules and customs, skills and talents, necessary to uncover, capture, produce, preserve, and exploit information are now mankind's most important rules, customs, skills, and talents.

So be of good cheer. You are in the right place at the right time with the right skills and talents. We need them—and the tranquil quiet in which you practice them—more than ever. And if you have to change your rules and customs, apply your skills and talents in different ways and different places, to accommodate yourselves to the times, well, so do the rest of us. The great thing about a free market is that you don't know where its creativity will lead. Now we have two such markets, competing for new patterns of human life. That can't be all bad.

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Collecting Conversations in a Massive-Scale World

By R. David Lankes

This paper highlights the growing importance, challenges, and opportunities of massive scale computing as they relate to libraries. Massive-scale computing is defined as the predictable widescale availability of computing power, storage, and network speeds at immense levels. The author argues that libraries must help shape the emerging world of nearly unlimited computing capacity, and outlines an approach to library service in such an environment: participatory librarianship.

Introduction

We are in a time of near-universal mission-seeking by libraries. Where once libraries were arguably the home to the largest information stores in the world, today the floodgates of digital data have been opened and libraries are now seen as a much more selective center of documents. This focus on books and formal documents, while they have served the library very well in the past, begins to inhibit the library's evolution. The tools that have developed over the past 200 years focused on items and artifacts (books, albums, etc.) have begun to show both their age and their rigid assumption in a world of real-time information production and distribution.

It is nothing unusual that our field, or any field, must engage in a series of self-reflections and justifications of its purpose and tools. It is the sign of an active and important pursuit that questions arise. Libraries have had such mission discussions as they moved from ivory towers to the public, as video challenged books as central modes of information disseminations, and now it is happening again as the field struggles with digital items that do not neatly fit the definition of "document" or "item." I argue that such changes and challenges need to be embraced, and embraced by returning to libraries' core mission: the facilitation of knowledge acquisition in our communities. We begin this discussion with an example from the transportation industry.

Gigabyte per Mile

In the process of a Transportation Research Board study on information management in the transportation industry), several panel members observed that soon every mile of road will generate a gigabyte of data a day.¹ This data will come from road sensors embedded into asphalt to detect temperature for winter salting, real-time traffic data from roadway cameras, weather information, toll data from RFID (Radio-Frequency Identification) expressway systems, car black boxes, and myriad other data sources. It is assumed that this will become a gigabyte an hour

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The following paper was derived from a presentation given at the ALCTS 50th Anniversary Conference "Interactive Futures," held in Washington, D.C., June 20-21, 2007. As with any talk, there is some level of informality, and some large ideas given short treatment. Where possible, citations have been provided so that the reader may delve more deeply into the topics mentioned.

as more and more technology finds its way into our vehicles and management systems (GPS data, real time environment monitoring, etc.). As there are 3.5 million miles of highways in the United States, that would be 3.3 petabytes of data per hour, or twenty-eight exabytes per year.

Some readers may not be familiar with an exabyte. It is the name for a very large volume of storage like megabytes, gigabytes (1024 megabytes), and terabytes (1024 gigabytes); technically 2^{60} bytes. Table 1 will give the reader some sense of the scale involved.

Table 1. Data Powers of Ten

Byte	1 byte: a single character
Kilobyte	2 kilobytes: A typewritten page
Megabyte	2 megabytes: A high-resolution photograph
Gigabyte	2 gigabytes: 20 meters of shelved books
Terabyte	2 terabytes: An academic research library
Petabyte	2 petabytes: All U.S. academic research libraries
Exabyte	5 exabytes: All words ever spoken by humans.
Zettabyte	1,000,000,000,000,000,000 bytes or 10^{21} bytes
Yottabyte	1,000,000,000,000,000,000,000,000 bytes or 1024 bytes

Source: University of Berkeley, *How Much Information?*, www2.sims.berkeley.edu/research/projects/how-much-info/datapowers.html (accessed Sept. 16, 2007).

What the reader needs to realize is that each succeeding row in the table, from megabyte to gigabyte to terabyte and so forth, is an exponential increase. By and large people do not think in exponential terms. Gladwell uses the analogy of folding paper to demonstrate just how big the shifts involved in exponential change are.² Imagine you have a huge piece of paper. While the paper is large in terms of its width and height, it is only .01" thick. You fold it in half. You then fold it in half again fifty times. How tall would it be? Many people might say as thick as a phone book, or get really brave and predict as high as a refrigerator. The actual answer is approximately the distance between the earth and the sun.

How can this be? Certainly if I stack fifty pieces of paper on top of each other, the stack would not be that large. However, stacking separate sheets is a linear progression, which is not what you accomplished by folding the paper. With every fold, you doubled the thickness of the paper. So one fold, the paper is twice as thick as when you started. With the second fold the paper is four times as thick—the next fold is eight times as thick and so on. In first few folds you do not see a major increase, but at about fold forty you are doubling a mile. We are not used to thinking in terms of

exponential growth because most things we deal with grow linearly. However, technology does not.

Predictable Change

In 1965, computer pioneer Gordon E. Moore predicted that the number of transistors that could fit on a chip (roughly equivalent to the speed at which the chip could process information) would double every eighteen months.³ The prediction has become so reliable, it is referred to as Moore's Law. The law is an exponential change just like the paper folding. Computers have not just gotten faster over the past decade, they have gotten exponentially faster. What is more, currently makers of storage technologies—hard drives, solid-state flash memory, and the like—are exceeding Moore's Law. The emergence of massive-scale computing in our every day lives is a predictable change, unlike the Web.

The Web and associated widespread Internet penetration was a discontinuous event. No one could truly predict a world where URLs come with every can of soda, or where an online search company would become one of the biggest corporations on the planet. Libraries can be excused for taking some time to adjust their service models to such an unpredictable and disruptive force. Yet libraries, by and large, have adapted to the new reality. As providers of access, guiding online research, supporting distance education, providing virtual reference, or developing metadata schema, libraries have adapted to this change and continue to do so.

The question now lies before the library community: will massive-scale computing be another disruptive force, or, as it is a predictable change, will libraries proactively engage in the massive scale computing world? This question is not theoretical, nor is it a question that can long be delayed. Consider that following quote from *Wired* magazine:

Ask.com operations VP Dayne Sampson estimates that the five leading search companies together have some 2 million servers, each shedding 300 watts of heat annually, a total of 600 megawatts. These are linked to hard drives that dissipate perhaps another gigawatt. Fifty percent again as much power is required to cool this searing heat, for a total of 2.4 gigawatts. With a third of the incoming power already lost to the grid's inefficiencies, and half of what's left lost to power supplies, transformers, and converters, the total of electricity consumed by major search engines in 2006 approaches 5 gigawatts . . . almost enough to power the Las Vegas metropolitan area—with all its hotels, casinos, restaurants, and convention centers—on the hottest day of the year.⁴

Consider also that many universities, companies, and even primary and secondary schools have run out of power to add new computing equipment. Either their own electrical infrastructure cannot handle the load of computing, or their municipalities literally have no more power to send.

Options?

So how can the library community respond to the emerging reality of massive data stores, unimaginable processing power, and super fast networks? In particular, how will libraries respond when the limitations of storing the world's information indefinitely disappears, and the production of new data and information grows exponentially from today? Let us explore some options.

Option One: Ignore It

No one said the library has to take on every challenge presented to it. In fact, many criticize libraries for taking on too much. Perhaps the problem of massive-scale computing and storage is not a library problem. Certainly for those who argue that libraries are in the business of literacy and cataloging, there is plenty to do with published documents.⁵ After all, libraries are plenty busy with published documents and digitizing historical documents. Why add the problem of real-time information stores and digital items that don't remotely look like documents? Furthermore, there are already plenty of other disciplines lining up to tackle this issue. From e-commerce to computer science to individual industry sectors like transportation and medicine many have begun to acknowledge the problem of massive scale computing. The National Science Foundation and National Endowment for the Humanities alike have begun "cyberinfrastructure" initiatives. In addition, the computing industry has certainly taken care of these problems to date. With faster processors, smarter software, and bigger hard drives, no doubt Apple, Microsoft, or the other industry players can solve these issues.

The answer to "why not ignore it," I argue, comes down to a simple ethical consideration. If libraries do not address these issues with their foundation of praxis and principles, the consequences for the field of libraries and society itself, could be grave. Look at the largest portal and search engine companies. When they partner with libraries, such as in large-scale digitization efforts, these commercial organizations gain credibility, and have negotiated safeguards of the material they are digitizing (scans being redeposited with libraries, for example). However, look at the data these organization store. How comfortable is the library profession with these data stores when search engine providers cooperate with governments (domestic and abroad)? Will

principles closely aligned with civil liberties and privacy be preserved? Will data stores of unique resources beyond the current library collections be made widely accessible? The answer is obvious—only as long as the business model is served.

The ultimate result may well be the commercialization of data stewardship in the massive-scale world. We have already seen how well that works with scholarly output and journals. To be sure, I am not arguing that libraries must do it all, but they must be a vital part of the massive scale landscape. If we truly value our principles of privacy, access, and so on, we must see them as active, not simply passive. We cannot, in essence, commit the sin of omission by not engaging the massive-scale world, and allowing access and privacy to be discarded or distorted. We should be working to instill the patron's bill of rights throughout the information world, not simply when they enter our buildings or Web sites.

Option Two: Limit the Library

A closely related strategy to ignoring the issue is to acknowledge the issue and redefine our mission around it. In essence, libraries are in the knowledge business, which is now going to be defined as document-like objects, with some sort of elite provenance, and well synthesized. In fact, arguments have been made that sound very close to this approach. The distinction is sometimes subtle, as in this quote from Crawford and Gorman:

Libraries and librarians serve their users and preserve the culture by acquiring, listing, making available, and conserving the records of humankind in all media and by providing services to the users of those records.⁶

Here, while the mission sounds expansive, the key comes in defining what a "record of humankind" is. Do large-scale datasets fit into this category? What about blog entries or reference inquiries? Certainly they appear not to in Gorman's later essay "Web 2.0: The Sleep of Reason."⁷ Here Gorman bemoans "an increase in credulity and an associated flight from expertise."⁸ The problem, of course, has always been in defining and agreeing on an expert. Such notions are almost always situational (for a much more detailed discussion on this issue, see my forthcoming paper).⁹

However, there is a much deeper problem in this line of logic. Namely, it pits two long-standing practices and ideals in librarianship: selection and intellectual freedom. Selection and weeding, common library practice, grew out of resource limitations. Shelf space, book budgets, availability, use of jobbers, and the like are all about existing in a world of scarcity. All of these resources in the physical

world constrain the size and scope of the collection. Not since the days of monks and illuminated manuscripts have libraries been convincingly able to collect it all. Today the concept of “comprehensive” is often limited to a serial run or manuscript series.

Yet in a truly digital world, the growing prospect of cheap storage makes digital artifacts very different. While licensing and cost may still restrict access to some items, collecting massive, effectively limitless, digital items makes the selection due to scarcity argument all but moot. Imagine an academic or school library collecting every paper (including every draft and note) ever written by all of its students. Imagine every public library collecting video and minutes and audio from every public meeting held. The old arguments of “not enough room” to accomplish such tasks are clearly disappearing.

Certainly by having a library collect and disseminate such information, we are providing free and open access to information. Whether we should, whether it is worth doing so is no longer a selection from scarcity debate. It becomes a selection-by-choice debate. Can libraries choose what to collect and still say they are providing free and unencumbered intellectual access to these materials? In a massive scale world, libraries will have to choose between these ideals.

Option Three: Catalog it All

Some have argued that cataloging lies at the heart of librarianship.¹⁰ While I and many others take issue with the argument equating “human intervention for the organization of information” solely to cataloging, it is hard to refute the more general concept that information organization lies at the heart of the profession. Why not then extend the current praxis of the field, that is, metadata generation, to the growing mass of digital information?

It is a pretty commonsensical argument that the library field (or indeed any given field) is unable to provide the raw person power behind indexing the world of networked digital information. However, we also have some pretty good empirical reasons to show this is not an acceptable means of proceeding. The first is that as a field we have already tried this. From early OCLC experiments with CORC (Cooperative Online Resource Catalog) to the Librarians Index to the Internet (claiming more than 20,000 sites indexed), librarians have tried to selectively catalog the Internet. They all cite problems of timeliness and a rapidly changing Internet environment (catalog it today, the page will move tomorrow) in trying to catalog the world.

Ignore the problems of shifting pages and dynamic content, and suppose for a minute that every page on the Internet was not only static, but never changed its location. In 2005, Yahoo! estimated it indexed twenty billion pages.¹¹ If we had our 65,000 American Library Association (ALA)

members spend one minute per record indexing these pages, the good news is that the entire Internet could be indexed in a little over seven months. The bad news is that those ALA members would have to work the seven months straight without eating, sleeping, or attending a committee meeting. At the same time Google was claiming its index was three times as large.

The fact is that the Internet is, however, very dynamic. Blogs, gateway pages, news outlets, and other dynamic content represent a growing portion of the Web. If all of those ALAers did decide to spend seven months cataloging the Web, they would have to start in the eighth month doing it all over again. Of course, they might also want to spend some time on the four billion new pages created each year also (using a conservative estimate from OCLC’s growth data).¹²

All of this debate, however, ignores the most interesting aspect of massive-scale computing—the invention of whole new records that defy traditional cataloging. Take, for example, gigapixel images. According to the Gigapixel Project, “It would take a video wall of 10,000 television screens or 600 prints from a professional digital SLR camera to capture as much information as that contained in a single Gigapixel exposure.”¹³

Imagine a historian creating a directory of gargoyles on the façade of the Notre Dame cathedral. Instead of taking a series of images of each sculpture, the historian simply takes four gigapixel images (one for each face of the building). Any user of the directory can zoom in from the entire front of the cathedral to any individual gargoyle at high resolution from a single image. How does one catalog that image? As Notre Dame? A Cathedral? A collection of gargoyles? What about a later scholar who uses the same image to explore the stained glass, or construction, or weathering of the façade or any number of other details that can be explored in the image. At such high resolutions, what is foreground, what is background, what is predominant, or what is detail becomes messy at best.

Option Four: Embrace It

I obviously favor the option of engagement. In fact, I would further argue that it is the ethical responsibility of library and information science education to prepare librarians for the world of massive scale computing. By not preparing future information professionals to deal with terabytes of data per second, we are limiting their ability to live up to the ideals of the profession and the needs of the future (and many current) patrons.

To embrace massive-scale computing in libraries we must:

- Expand and enhance current library practice. As previously discussed, librarians must become conversant

in not only processing elite documents, but real-time information as well.

- Go beyond a focus on artifacts and items. As will be discussed, books, videos, even Web pages themselves are simply artifacts of a knowledge creation process. To concentrate on containers and documents is to be overwhelmed. By focusing instead on knowledge creation itself and directly incorporating patron knowledge, librarians should be better able to manage and add value to the tsunami of digital data being created.
- See richness and structure beyond metadata. To move from processing containers to capturing and organizing knowledge means going beyond traditional methods of classification and cataloging. Too often librarians enter a discourse community and drive it to taxonomy creation when the vocabulary, the very concepts of the discourse community, is still formative. Instead, librarians need to look to other structures in knowledge products and the creation process such as provenance, linking (citations), and social networks to provide a useful method of information discovery and enrichment.
- Change at the core of the library. All of this needs to be done at the core of library service, not as some new service or by adding new systems and functions to an already labyrinthine array of databases, catalogs, and software.

There is now an effort to evolve our understanding of librarianship to accommodate these shifts in approach, and this should help the field engage in the world of massive-scale computing.

Participatory Librarianship

Simply put, participatory librarianship recasts library and library practice from the fundamental concept that knowledge is created through conversation. Since libraries are in the knowledge business, they are therefore in the conversation business. Participatory librarians approach their work as facilitators of conversation. Be it in practice, policies, programs, or tools (or all of these), participatory librarians seek to enrich, capture, store, and disseminate the conversations of their communities.

The other implication of this approach is that books, videos, and documents are byproducts of conversations. That is not to say they are unimportant, but acknowledges they are only a pale reflection of the knowledge creation process. By the time you read this paper, for example, it has already been rewritten and edited numerous times. By the time the ideas are encoded into words, they have been debated and discussed by a wide spectrum of people. The

citations at the end give only an idea of the resources used to develop these arguments (the ones written down and easily addressed). This paper no doubt also will lead to a few discussions and disagreements after it is published. Yet it is this written document that will be indexed in the databases. The rich conversational space around it is lost.

The idea of conversation in librarianship or a “conversational space” around articles is not all that new. Bechtel talked about how scholarly communications should be taught as an ongoing conversation in information literacy programs.¹⁴ Conversational organizational approaches can also be seen in: citations and scholarly communication, law and precedents, bibliometrics, Web of Science, reference, and special collections, and it plays a large role in collection development. In many ways, libraries have been in the conversation business; they have simply developed technologies centered on items—so much so we are now struggling to recapture the conversation in initiatives such as federated searching and FRBR (Functional Requirements for Bibliographic Records).

Now turn this problem around for a moment. Let us say that we could capture this conversational space. We would have audio files of class conversations, video of presentations, the full text of the articles cited (including the citations used in those articles hotlinked), drafts, and editor’s notes—the whole works. Approached as items, each would need a catalog record, and all might be available in the catalog. Yet what holds all of them together as a conversation? In fact, the conversational aspects of this collection of artifacts exist between the catalog records themselves. It is the relationship of items, not the items. This is the kind of information we capture in an annotated bibliography.

If in addition to capturing the items, we captured the relationships, how might that work? Imagine now finding this paper online. Once there, you should be able to instantly find the rest of the items. Click—you see a previous draft. Click—there is a citation. Click—here is another work by that author. You are now surfing the conversation itself. It also allows you to rapidly find lots of heterogeneous data. Click on this article and see the text, find a graph and click on it. Up pops access to a large dataset. Run some new analysis on the data and post it. Now someone finding your article can find both the original dataset and the original article that was published. It is in the relationships between items we gain navigation, not in the items themselves.

As a field, we must think in threads. The way to handle a terabyte of data per second is not to try and catalog items in less than a second, it is to know what thread the new terabyte extends. “Oh, this is more weather data from NOAA, I’ll attach it to my NOAA thread.” Once available scientists, students, and the general public can use that new dataset as a starting point for yet a new thread.

Take our gigapixel image of Notre Dame. The image is

simply one item in a thread about gargoyles as created by the author. The same item, however, can also become the starting point for threads by the architect, historian, theologian, etc. Furthermore, by finding any point in the conversation about Notre Dame, be it architectural, historical, or spiritual, you can find any other conversation.

If this begins to sound like the Web itself, you are right. However, imagine imbuing the Web with the ideals and tools of librarianship. These threads we create can incorporate fundamental concepts such as authority files. The search tools and “thread” (annotation) tools can both preserve privacy, and provide new structures for the library community to capture and add value to.

Conversations: It Takes Two

So by organizing materials into threads and capturing and adding value to the relationships between items, the library can begin to approach massive scales of information. However, just as with trying to catalog the world of digital information, creating and capturing threads can quickly overwhelm the resources of professional librarians. More to the point, with networked technology we want to capture these threads at the point of knowledge creation, with the authors of ideas. In order to do this, we must expand our systems and services to truly incorporate our patrons into them.

In the library science field, we have seen an evolution in thinking about the relationship between systems and users. Early computer systems were designed by programmers, and more reflected the system designer than those the system was intended for. This so-called system view was challenged, and eventually supplanted (at least rhetorically) by a user-based design paradigm.¹⁵ In the user-based approach, the user’s needs and habits needed to be well understood and then reflected in the systems we created. However, today we see a further evolution to truly user systems. In today’s spate of social Internet tools, the systems only provide a sparse framework of functionality for users to populate and direct. Wikis, blogs, video-sharing sites, and the like have shown that when users construct the system around themselves they gain greater ownership and utility. We call these participatory systems.

Participatory systems and librarians do not seek to construct a system of functions and information and then bring the users to them, but rather seek to support users as they construct their own systems and information spaces. Once again, this fits well with the rhetoric of librarianship. After all, from reference to collection development to cataloging (in the concept of literary warrant), we claim that users direct our services. Yet look at the systems we use to instantiate these ideals. The catalogs we provide only accept queries from users, not actual documents. In reference, we have

a conversation between librarian and patron, not patron and patron. It is time to take our ideals and make systems that reflect that the library is an agent of the community, not simply a service to it.

In other venues, these ideas are much more fully developed, and I recommend to the interested reader seeking out the more fleshed-out discussions of participatory librarianship.¹⁶ For now, let me simply state that to be a part of the community means that you have trust in your patrons and they have voice. To be a service to a community implies a paternalistic relationship and a separation.

Recommendations and Conclusion

Libraries must be active participants in participatory networking. This must be done at the core of the library, not on the periphery. Anything less simply adds stress and stretches scarce resources even further. The reason we should be looking at technologies such as blogs and Wikis is to get closer to the community and knowledge generation and to make all of our library systems more inclusive of community. By thinking in threads and using the social intelligence of our service community, the library profession is actually well poised to take on the world of massive-scale computing.

However, the library field will only thrive in the massive-scale world is to engage the ideas and current massive-scale stakeholders. To ignore the implications of massive-scale computing is dangerous. It abdicates serious decisions and consequences to others who do not have our experience and firm principles. Participatory librarianship is an opportunity not only to enhance the mission of the library, but proactively to position librarians at the forefront of the information field . . . where they belong!

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Social Libraries

The Librarian 2.0 Phenomenon

By Stephen Abram

The author shares his thoughts on the future of libraries and librarianship in the context of the emerging importance and impact of Web 2.0 and social computing.

This paper explores some of the concepts that underlie the emergence of the next generation of the Web and how it will affect libraries and librarianship. Commonly referred to as Web 2.0 and Library 2.0, it is also called the interactive Web or the Social Web. It is an exciting time in which we can use these tools to invent the future we need. These are my personal perspectives underpinned by thirty years in librarianship as a reference librarian, cataloger, indexer, publisher, vendor, and software developer.

Recently I was asked if some software applications I was involved in were Web 2.0 compliant. This was amusing and distressing on so many levels. It is amusing because what is being called Web 2.0 is not a “standard” in almost any sense of the word. It is distressing because it shows how quickly a conversation becomes an expectation in today’s world. This is a perfect example of the power of the ninety-five theses of the Cluetrain Manifesto.¹ The major thesis to me is number one: “Markets are conversations.” I thought it might be useful to explore the opportunities for libraries to use Web 2.0 technologies to generate further success.

The global Web 2.0 discussion is birthing a number of newborn babies: Law 2.0, Advertising 2.0, and Library 2.0 and Librarian 2.0 among them. And why should you read this piece? You have heard it all before. But in a few years these Web 2.0 conversations will have the power to drive huge transformations in our media landscape and therefore our life, work, and play environments. We are entering a period of enormous change—far greater than what we have experienced in our lives to date. Major forecasters such as the Gartner Group and Morgan Stanley have noted that this will be transformational on a very global scale. It will be exciting too, although those of us who care about communities, research, discovery, invention, learning, and information will be tasked with some pretty heavy strategic planning goals. We are going to need to stay alert and nimble.

Web 2.0

According to some sources, the term Web 2.0 has been around since about October 2004. Wikipedia, the free Web encyclopedia, defines Web 2.0 as

A term often applied to a perceived ongoing transition of the World Wide Web from a collection of websites to a full-fledged computing platform serving web applications to end users. Ultimately Web 2.0 services are expected to replace desktop computing applications for many purposes.²

I think Web 2.0 goes much further than this, actually beyond an application focus. It is really about the “hot” Web. I am talking here about “hot” in the

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McLuhanesque sense of the hot and cold or the warm and cool aspects of technology. What makes the Web warmer or hotter?

Interactivity. Of course, the Web is already interactive in a cooler sense. You can click and get results. You can send e-mail and get responses. You can go to Web sites and surf. The old World Wide Web was based on the “Web 1.0” paradigm of Web sites, e-mail, search engines, and surfing. Tim Berners-Lee’s vision was originally much richer (see his current thinking on the semantic, and neutral Web), but we had to spend a few years filling in the details.³ Web 2.0 is about the more human aspects of interactivity. It is about conversations, interpersonal networking, personalization, and individualism. It is focused on content in the context of people, workplaces, markets, community, and learning. In the library world this has relevance not just to our public Web portals but also to workplace intranets and the imperative for greater social cohesiveness in virtual teams and global content engagement. Plain intranets and plain HTML Web sites are fast becoming old stuff, so last century. The emerging modern user needs the experience of the Web and not just content, to learn and succeed. Are the expectations of our users increasing faster than our ability to adapt?

We can already see some of these modalities emerging in the gaming environment. We see it clearly in the convergence of Web 2.0 type features and functions as they emerge in the high growth sites such as MySpace, YouTube, Second Life, Active Worlds, Facebook, Ning, Twitter, Meebo, and others. Context is the word of the day here. Such technologies as are listed below serve as the emerging foundation for Web. 2.0:

- RSS (really simple syndication)
- wikis
- new, simple, and revised programming methods like AJAX, J2EE, widgets, gadgets, mashups, and APIs
- blogs and blogging
- advanced portals and portlets
- commentary and comments functionality
- personalization and “My Profile” features
- personal media such as podcasting and MP3 files
- streaming media audio and video formats
- reviews and user-driven ratings
- personalized alerts
- Web services for enhancement and data mining
- instant messaging and virtual reference including cobrowsing
- folksonomies, tagging, and tag clouds
- photos (for example, Flickr, Picasa)
- social networking software
- Open Access, Open Source, Open Content
- socially driven content
- social bookmarking (such as del.icio.us)

The technology infrastructure of Web 2.0 is complex, constantly in flux, and really in a Renaissance mode. It includes server software, content syndication, messaging protocols, standards-based browsers, and various client applications. In some ways we have the mosaic tiles now and are just starting to create the bigger picture.

This is fundamentally about a transition of the Web site and e-mail-centric world from one that is mostly about information (and largely textual information) to one where the content is combined with functionality and targeted applications. Web 2.0 could be seen as the Web becoming a computing platform for serving up Web applications to end users, but I believe that this is a too geek-centric point of view. It is primarily about a much higher level of interactivity and deeper user experiences, which are enabled by the recent advances in Web software combined with insights into the transformational aspects of the Internet. Web 2.0 is ultimately about a social phenomenon—not just about networked social experiences, but about the distribution and creation of Web content itself, “characterized by open communication, decentralization of authority, freedom to share and reuse, and the market as a conversation.”⁴ It moves the Web experience into a place that more closely resembles an academic learning and collaboration environment than an information delivery and e-commerce vehicle. To enable this new world, we will see a more organized Web with a plethora of new modalities of categorized content and more developed, deep-linking Web architecture and a greater variety of Web display modes like visualization. Ultimately, this will result in another shift in economic value of the Web, potentially equaling that of the dot-com boom and probably driving an even higher level of social, political, institutional, and economic disruption. We had better be ready.

What is truly exciting is that Web 2.0 is just the title of a conversation. There is no standard (at least not just a single one). We can all participate and influence the development of the next generation of the Web. To the detail-oriented, this conversation may be too high in the stratosphere without enough concrete recommendations and, for the theoretically inclined, it may remain too visionary for real implementation. Among all of us, it is worth following. Web 2.0 is probably the series title of the most important conversation of our age and one whose impacts can be truly transformational on a global scale.

Web 3.0

There is even discussion and dreaming about a “Web 3.0.” One could speculate that the Google/Sun Microsystems alliance to create a Web-based operating system for applications such as word processing, spreadsheets, e-mail, readers, and presentations are early indicators of this trend. The

introduction of IBM's Lotus Symphony for free is another indication. Perhaps 3.0 will look something like the Croquet Consortium project (www.opencroquet.org), which is very exciting and worth reviewing as a potential future scenario. Can we imagine the merger of Google Earth and Second Life to truly create a parallel world experience: Second Earth? Web 3.0 will probably be even more distributed in form than Web 2.0, and maybe some of the Web 2.0 applications will disappear or merge with a new integrated whole. Web services or the emerging semantic Web may replace such things as social networking sites and repositories. Either way, it rises to a new plateau of user experience and user control.

Library 2.0

In the library and information professional world, I believe that we generally deal with a savvy audience of users relative to the general consumer demographic. We also tend to the digital divide issues of the more challenged user. This means that what our most critical users do not know about or use, we can often inform them and train them in the newest technologies that can have an impact on their success. We can help users who are comfortable using technologies such as wikis, RSS, instant messaging, news aggregators, and blogs, to leverage these to make a difference in reaching their goals and your institutional or enterprise goals. Libraries that block access to the newest applications are positioning a poor technological presence, which is not a good position to take as a bridge in the digital divide for their communities.

Library 2.0 is another conversation. This narrative is mainly around the concept of how to use the Web 2.0 opportunities in a library environment. This exciting concept can create a conversation that creates the next generation of library Web sites, databases, online public access catalogs, intranets, and portals in a way that allows the end user to thrive and survive (and libraries along with them!). It is also about having a conversation about some of the human aspects of this emerging environment. Are we entering an era where the user experience for learning and research will finally top the technology? I hope so.

Clearly every one of the technologies listed in Web 2.0 above—RSS, wikis, blogging, personalization, podcasting, streaming media, ratings, alerts, folksonomies, tagging, social networking software, and the rest—could be useful in an enterprise, institutional research, or community environment, and could be driven or introduced by the library. Yes, I know that many of these are already used individually in many of your environments. The beauty of Web 2.0 and Library 2.0 is the level of integration and interoperability that is designed into the interface through your portal or

intranet. That is where the real power to enhance the user experience exists. To take advantage of the concepts inherent in Library 2.0 is the imperative to not shy away from adding advanced functionality and features directly into the content. This would provide the context and workflow-oriented features that users will demand or are demanding already. We are seeing the beachfront on this trend in services such as Second Life, Library 2.0, and the MySpace and Facebook development platforms.

Librarian 2.0

We cannot have these changes without some improvements in the capacity, competences, aptitudes, and attitudes of library workers. Librarians have a once-in-a-generation opportunity to invent a new future. Librarian 2.0 is the guru of the information age. Librarian 2.0

- strives to understand the power of the Web 2.0 opportunities;
- learns the major tools of Web 2.0 and Library 2.0;
- combines e-resources and print formats seamlessly;
- is container and format agnostic;
- is device independent and uses and delivers to everything from laptops to PDAs (personal digital assistants) to iPods;
- develops targeted federated search and adopts the OpenURL standard;
- connects people and technology and information in context;
- does not shy away from nontraditional cataloguing and classification and chooses tagging, tag clouds, folksonomies, and user-driven content descriptions and classifications where appropriate;
- embraces nontextual information and the power of pictures, moving images, sight, and sound;
- understands the "long tail" and leverages the power of old and new content;
- sees the potential in using content sources such as the Open Content Alliance, Google Book Search, and OpenWorldCat;
- connects users up to expert discussions, conversations, and communities of practice and participates there as well;
- uses the latest tools of communication (such as Skype) to connect content, expertise, information coaching, and people;
- uses and develops advanced social networks to enterprise advantage;
- connects with everyone using their communication mode of choice: telephone, Skype, IM, SMS, texting, e-mail, virtual reference, and so on;

- encourages user-driven metadata and user-developed content and commentary;
- mines their usage data for insights into user behaviors;
- and understands the wisdom of crowds and the emerging roles and impacts of the blogosphere, Web syndicasphere, and wikisphere.

First and foremost, Librarian 2.0 understands users at a deep level—not just as pointers and clickers, but in terms of their goals and aspirations, workflows, social and content needs, and more. Librarian 2.0 is where the user is, when the user is there. Librarians are eminently qualified to contribute to this immersion environment. Aspects of librarian-influenced e-learning and distance education as implemented by our institutions and communities should allow us to contribute to the preparation of our users to acquire and improve their skills and competencies.

It is essential that we start preparing to become Librarian 2.0 now. The Web 2.0 movement is laying the groundwork for exponential business growth and another major shift in the way our users live, work and play. We have the ability, insight, and knowledge to influence the creation of this new dynamic—and guarantee the future of our profession. *Librarian 2.0—now.*

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Reflections on Cataloging Leadership

By Beth Picknally Camden, Sheila S. Intner, Janet Swan Hill, Regina R. Reynolds, and William A. Garrison

Four Association for Library Collections & Technical Services leaders (Sheila S. Intner, Janet Swan Hill, Regina R. Reynolds, and William A. Garrison) reflect on their careers and offer insights in their paths to leadership positions in the professional and in the Association. A brief introduction by Beth Picknally Camden, program moderator, introduces the papers.

Introduction

By Beth Picknally Camden

The graying of the profession and looming retirements of baby boomers have been discussed with some frequency in recent years. Much of the focus has been on bringing new librarians into the profession. The need to hire into entry-level positions is paired with the need to fill leadership positions, both in our institutions and in our professional organizations. How can we inspire new and mid-career librarians to move into positions of leadership? How should we be mentoring potential leaders? The Cataloging & Classification Section (CCS) of the Association for Library Collections & Technical Services (ALCTS) sought to answer these questions by bringing together some of our current leaders to share insights and lessons learned in their careers. Their joint experience covers academic, special, and public libraries, as well as library schools. Among them are chairs of CCS and presidents of ALCTS. They have been active in standard development groups. They have expertise in metadata, cataloging and serials, and serve as administrators, practitioners, and professors.

The four speakers, whose papers are published here, reflected on their career paths, leaders who influenced and mentored them, and their paths to CCS and ALCTS involvement. They shared lessons that they had learned and addressed the question of what the future holds for cataloging leaders.

Reflections on Cataloging Leadership

By Sheila S. Intner

Let me begin by giving you my short answers to the questions posed by the planners of this program. Then I'll provide highlights of my own personal experiences.

The announcement stated, "With the graying of the profession and looming retirements of baby-boomers, a new generation of cataloging leaders is needed. How should we mentor potential leaders?"

Here is what I believe the profession, which includes academic programs and organizations such as the ALCTS CCS, can do to mentor potential cataloging leaders:

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These papers are based on presentations given at "Reflections on Cataloging Leadership," a program sponsored by the Association for Library Collections & Technical Services Cataloging and Classification Section at the American Library Association Annual Conference, June 23, 2007, Washington, D.C..

- Teach them the skills they need, including management, teaching, communication, persuasion, negotiation, motivation, budget, and writing skills.
- Provide opportunities in which they can learn to function in a real world setting under the guidance of master-catalogers, so their cataloging skills are honed effectively and they know what they are doing and why.
- Make appointment to committees a more orderly process that accommodates more people and do more for those who show an aptitude. The haphazard way things were done when I was chair of CCS and president of ALCTS allows good people to slip through the cracks or get disgusted and give up.

Here is what individuals can do:

- Love your job and show your enthusiasm for it!
- Be a good role model in terms of your participation in service activities, research, and writing for publication.

My Personal Career Path

Except for a brief time immediately after graduation, my job was always broad and included management tasks as well as writing and publishing. I had to train staff, communicate complex information, work with vendors, represent my library to a library automation user group, write budgets and annual reports, and so on. I got into automation at the very beginning and learned to work with computers from the ground up.

Leaders who influenced me were the people who embraced the future and were at the helm of making it happen: Henriette Avram, Bob Hayes, Michael Gorman, Liz Bishoff, Marion Reid, and Jean Weihs. Several of these people later became my friends as well as colleagues.

To be frank (as I reflect on my involvement with CCS), I never got the position I truly wanted, which was to be a voting member of the Committee on Cataloging: Description and Access (CC:DA). Instead, I became chair of CCS and got to appoint people to CC:DA and the Subject Analysis Committee (SAC), and later became president of ALCTS and got to appoint the chair of Machine-Readable Bibliographic Information (MARBI) Committee, the ALA representative to the Joint Steering Committee for the Revision of AACR2, the ALA representative to the Dewey Editorial Committee, and so on. That should have more than compensated me, but every once in a while, I still think wistfully how nice it would have been to have been on CC:DA.

Advice to Potential Leaders

The advice that follows is not specific to me, but could be done by anyone.

- Work in leadership activities, such as standards-setting, teaching, and training.
- Learn how to do research that benefits your work life and publish the results. Publishing is key to being recognized, but you have to have something to say, first, which the research provides. One path is to earn a doctoral degree, because you have to conduct a proper research project and write a dissertation, although it is not the only way.
- Earn credentials that make you more effective in your job.
- Say “Yes” to opportunity, even if it means moving from your hometown, working longer hours, and taking more responsibility and bigger risks. Try for the things you genuinely want and do not be daunted if you do not get what you want the first time you try.
- Seek help and accept it (especially from family members, mentors, and teachers), but be careful of taking direction from people whose agenda you do not know. Always seek the “win-win” strategy, put yourself in the other person’s shoes, and be generous with praise and other rewards.
- Never lie. Earn the trust of those around you, those you teach, those you supervise, and those with whom you work. Always do what you promise and never leave colleagues in the lurch.

A Winding Path to Cataloging Leadership

By Janet Swan Hill

Looking back over my career and trying to figure out why and how things turned out the way they did has been interesting. I have come up with the following list of circumstances, actions, and habits that I believe have been influential. You will notice that some of the items on my list are things over which none of us has any control.

- First, I had parents who always thought I could accomplish anything I set my mind to, with a father who instilled in me a belief that you do not have the right to complain about something if you are not also willing to do what is within your power to fix it.
- Second, I went to a women’s college. Obviously, for some people that simply is not an option. But at a women’s college, it tends to be assumed that women are capable of achieving great things, and of filling leadership roles. And as I have often pointed out,

Vassar most emphatically does not teach its students to shut up and sit down.

- Next, there is the accident of finding yourself in a place where interesting things are happening, and where there are interesting people working, and then combining it with the nonaccident of taking advantage of such circumstances.
- It helps to have people around you who are good examples, who can encourage you, appreciate what you accomplish, and who may also be able to put you in contact with useful people.
- It is valuable to develop a wide circle of acquaintances, and to be interested in things beyond a narrow specialty.
- You need to be willing to speak up in public, and preferably also be willing to “speak up” in writing through conducting and publishing research, thought, and opinion.
- Above all, you have to work. You need to be the sort of person who will volunteer, or accept an assignment, and be known as someone who will complete that assignment.
- Finally, I think you have to not care very much about your status or your influence, and instead to care about the work itself.

My Career

Now, let me describe my career as it developed, so you can see why I identified these points as mattering. Before I start, however, let me admit that I am an organization wonk. At last count, I have served on 61 committees, boards, subcommittees, or task forces (15 as chair) in the ALCTS, the Map and Geography Round Table (MAGERT), and the American Library Association (ALA). I have been ALA’s representative to the Joint Steering Committee. I have been elected CCS Secretary and ALCTS president. I have been elected five times to ALA Council as a Councilor at Large, and once to ALA’s Executive Board. I am currently serving as one of ALA’s representatives to the Library of Congress (LC) Working Group on the Future of Bibliographic Control.

But I am an accidental librarian. I went to library school because my husband was drafted and sent to Vietnam and I needed something to occupy my mind. When I was about to finish my degree, I saw a posting for the LC Special Recruit program (later renamed Intern Program), and because we were planning to return to Washington, D.C., to live anyway, I applied. During the job interview, I was asked whether I would be likely to work for LC if I did not get into the recruit program and I said no. I would probably try to work for the United States Geological Society so I could do something closer to my undergraduate major of geology.

I am convinced that because of that answer I got into the program. As a special recruit, I spent three months at LC going from department to department, meeting all kinds of people, and getting a taste of all kinds of work.

Afterwards I took a permanent position in the Geography and Map Division as a cataloger. This was at a time that map cataloging standards were in active evolution, so within just a few years I was involved in the development of AACR2’s chapter for maps and in editing the revision of the portion of the G classification schedule that covers maps and atlases; I also compiled LC’s map cataloging manual.

When my husband took a job in Chicago, I applied for a job that happened to be open at Northwestern University, using contacts from LC as references, including Bill Welch, the Deputy Librarian of Congress, and Ben Tucker, the Principal Descriptive cataloger. I got the job as head of Cataloging at Northwestern and, to my great good fortune, went to work for Karen Horny, who was head of Technical Services and just happened to be president-elect of the Resources and Technology Division (RTSD), now ALCTS.

Contributions to the Profession

With Karen Horny’s encouragement, I shifted my focus from the Special Library Association to the ALA, and volunteered for committee work in the RTSD CCS. Nancy Williamson, then chair-elect of CCS, appointed me to the CC:DA. Nancy John, who had just been appointed CC:DA Chair, asked me to be secretary.

At that time, CC:DA was a very new committee that was working on controversial matters, such as how, when, and whether AACR2 would be implemented. The committee meetings and hearings were very heavily attended, as a result of which I became acquainted with and developed working relationships with a great many people, some of whom went on to become quite influential in cataloging circles.

From the time of that first appointment, I have never been without a committee appointment or office, and have often had to turn down appointments because they would have been over the ALA quota. In the mid-1980s, my interest in education and recruitment for cataloging led me to join the ALA Committee on Accreditation Site Visitor’s Pool, but it was not until 1987 that I was appointed to my first ALA-level committee. I applied the same kind of zeal and energy that I had learned on CC:DA to the *American Libraries* Editorial Advisory Committee—a level of activity that startled the editor and the rest of the committee, and after a while I was made committee chair.

In 1988, Nancy John nominated me to serve on the Joint Steering Committee for the Revision of the Anglo-American Cataloguing Rules (JSC), and at the same time I was asked to run for ALA Council. I also applied for a new

job, the one I hold today at Colorado. Because I could not be assured of getting any of these, I went forward with them all, and was successful at all three. Having cut my teeth on CC:DA, it did not occur to me to turn any of it down, and in fact, the work, although considerable, turned out not to be overwhelming.

When my first term on Council was up, I did not run again, mainly because I thought you were not supposed to, but I missed it terribly, so when my second term on the JSC was coming to a close, I got together a petition for Council, took it to a CC:DA meeting to gather signatures, turned in what was probably the only Council petition ALA has ever gotten that was signed entirely by catalogers, and ran for Council again. All told, I have been elected to Council for five terms. I was just re-elected to my fifth term.

Soon after my term on the JSC was over, I was asked to run for president of ALCTS. When I won, once again it never crossed my mind to resign from Council, but I have noticed that the only division presidents I can think of who have simultaneously served on Council have been from ALCTS—the other being Bob Holly.

During all this time, I was also writing, speaking, and publishing about things that I really cared about across a fairly wide range of topics. Additionally, I became an early and prolific contributor to electronic discussions. I did not do these things to gain name recognition, but I cannot deny that recognition was a byproduct. After all, people cannot recognize your name if you do not put it out in public.

In 1990, when I was on a panel at the Allerton Institute at the University of Illinois, I looked about me and saw people whom I had for some time regarded as leading lights in cataloging—people like Pauline Atherton Cochrane and Nancy Williamson—who were being introduced as “just retired” or “about to retire.” I realized that the generation of leaders that I had looked up to when my career was beginning was moving on, and the cadre of people that I had begun my career with was moving into the position of “leading lights.” Soon, that generation will be moving on, too.

You may have noticed that I have not mentioned mentors. I seem to be the sort of person who does not look for mentoring. But I certainly had help from many quarters, especially from people like Karen Horny, whose attitude toward service and toward publishing was extremely influential, and from Nancy John, who understood the importance of knowing how to navigate organizational waters.

Since serving as ALCTS president, I have mainly been involved with ALA at the Association level, but I still regard myself as a cataloger, and I regard my service on Council and to the broader association as service to ALCTS. There are very few technical services people who are active in the association at large—fewer than there need to be, in my opinion. I believe strongly that being able to bring a technical services

perspective to association work benefits the profession and the association, as well as benefiting ALCTS. When we concentrate our efforts exclusively (or nearly so) on specific and specialized facets of librarianship, it is easy to lose sight of what the profession at large is grappling with, and how our work relates to it. Further involvement beyond our own specializations enriches our understanding and contributes to the quality and relevance of our work. And at the very least, it does ALCTS good to have people outside the division being able to look at me and say, Hey look! She is a cataloger, and she is a genuine human being and a real librarian.

Verbs and Proverbs

By Regina Romano Reynolds

I feel very honored to be on this panel today, especially given the confession I have to make. My library career got off to a very bad start—I tried to arrange the books in a small technical library by Library of Congress card number. In my defense, the numbers *were* printed in the books, and I was straight out of college with an English degree. Unfortunately, I thought the printed numbers were classification numbers. Of course, this was “BC”—before CIP (Cataloging in Publication)—back in the dark ages when we still produced hand-illuminated catalog cards. Then I went to library school at the University of Michigan and Judith Hopkins set me straight.

The title of my reflection is “Verbs and Proverbs.” When I was planning this talk, I realized that there were so many things I wanted to tell you in the short time allotted that I needed to give myself some structure in order to prevent rambling on about all of my interesting career experiences. I am going to start each segment of my talk with a proverb or quote, followed by a few reflections, and then a verb to sum things up. My first proverb was actually the anecdote about my initial library goof, a mistake that taught me a lot about the need to always test your assumptions.

I studied for my Masters of Library Science at the University of Michigan between 1975 and 1976. Judith Hopkins was one of my mentors. Independent study I did with Judith, entitled “Readings in Cataloging Theory and Practice,” was one of my most valuable library school classes. The readings opened my eyes to the enormous world of cataloging thought. Some great thinkers have provided—and continue to provide—a strong theoretical and practical foundation for our profession. And so, the first verb is *read*.

Leadership

My second “proverb” is a quote about leadership from Adlai Stevenson: “It’s hard to lead a cavalry charge if you think you look funny on a horse.” You may think you will

feel funny or frightened giving a presentation, volunteering for an ALCTS committee, or otherwise putting yourself out there. Everyone does the first time or the first couple of times. The first time I filled in for a veteran LC liaison to The Committee to Study Serials Cataloging (now The Continuing Resources Cataloging Committee), I took one look at the large crowd gathered to hear the latest news on LC efforts at cataloging simplification (a perennial topic) and ran to the ladies' room to calm down. I did not always feel comfortable in front of an audience and I certainly did not always feel comfortable speaking like an ISSN expert—or an expert of any kind, but first I played one and eventually I became one. It's been a very satisfying journey. The verbs are *volunteer*, *stretch*, *grow*.

Vision

Next, I offer a fractured proverb: One picture is worth a thousand sound bytes. Libraries of the past dealt mainly with words—with text of various kinds. A quality that I share with the younger generation's fascination with YouTube and camera phones is that I am very visual; I often think in pictures. I encourage future cataloging leaders to remember that people learn differently. To reach the maximum number of people via our catalogs, we need to use more visuals and graphics. Catalogs with interfaces like Endeca and Aquabrowser use “word clouds,” color-coded displays, and other graphical devices to improve the user experience. Training manuals are more effective when they are enriched by screen shots, diagrams, and pictures of title pages and book covers. Videos can help with distance learning. Pictures of all kinds can provide another channel for our messages.

Even more important than literal pictures, we need to provide a vision for those we lead. Suzanne Striedieck, my mentor at Penn State where I first learned to catalog, presented me with a vision of the catalog as the heart or, maybe better, the brain of the library. That vision has served me well during my work in cataloging. I have learned that it is not the individual catalog record that counts nearly as much as the coherent, intelligent catalog that is created record by record, year by year. Even in a future where catalogs will take on very different shapes, interfaces, or contexts, I like to think that the catalog will continue to have relevance.

The future of bibliographic control is a topic of much speculation and activity right now—activity that I find fascinating and exciting, but I worry that we currently have no good vision of the future that we can hold up to entering or aspiring catalogers. I worry that we are tearing down the traditional past without having an inspiring vision that can lead us into a better future. I am following the progress of the Working Group on the Future of Bibliographic Control with great interest and with the hope that a vision will emerge from their work, a vision in which catalogers can

see a future for themselves that they can get excited about and work toward achieving. The verb is *visualize*, the result is *inspiration*.

Public Service

The following quote from Albert Einstein resonates strongly with me: “Not everything that can be counted, counts; and not everything that counts can be counted.” Linda Bartley, head of the National Serials Data Program at LC when I was hired in 1976, was my LC mentor. Linda instilled in me the concept of libraries and ISSN work as a “public good.” Linda's concept has provided me with a strong service perspective. Even though cataloging is not considered public service, in the same way as reference work, all library work involves either direct or indirect service. Librarianship is a service profession and one that most people do not enter with the primary goal of acquiring wealth. I am encouraged to see cataloging returning to a focus on serving the library user. Although I agree that accountability is essential, especially in the current environment of shrinking budgets in public agencies, I believe libraries need to balance business values such as “the bottom line at all costs” with values based on providing a public good. If a young person were excited by the bottom line, that person would probably choose to get an MBA or an accounting degree rather than a degree in library science. To inspire energetic, creative, and committed librarians we need to remember Einstein's words: “Not everything that counts can be counted.” The verb is *serve*.

A Career Working with Serials

My next proverb is another quote, from Ortega y Gasset:

Up to the present, the librarian has been principally concerned with the book as a thing, a material object. From now on, he must give his attention to the book as a living function. He must become a policeman, a master of the raging book.

When I found these words, I marveled that they were written in 1934, long before e-books, e-serials, and the entire raging Web menagerie. This was another quote that resonated strongly with me. “Mastering the raging serial,” is what I feel my career with the ISSN has been all about. My experience learning to catalog serials at Penn State set me up for an “ah-ha” moment when I first heard about the ISSN during a library school class at the University of Michigan. The year was 1976. The ISSN was only four years old. I was intrigued and little did I know that by the end of that year I would be busy assigning ISSN at the Library of Congress. Through all the ensuing years, ISSN work has never disappointed me. I have been privileged to interact with colleagues that form part of an “ISSN family” that now extends

to eighty-three ISSN national centers all over the world. I have been fortunate to be in a position that has given me the opportunity to grapple with serials as they evolved from primarily print publications to fledgling digital efforts emailed over BITNET or other early networks, to the full-fledged Web-based serials we see today. And I'm quite sure we have not yet seen the end point of serials evolution.

Remember to Have Fun

Finally, I offer a quotation from that great philosopher and actor, Warren Beatty: "You've achieved success in your field when you don't know whether what you are doing is work or play." There are more ways to have fun today both on and off the job than I remember when I was growing up. Given this ever-stiffening competition, future cataloging leaders need to enjoy and share the fun in the work of organizing information, and it really can be fun! Having fun with our work can lead to creative solutions to problems and can result in valuable innovations. The environments at Google, Yahoo!, and other companies that attract younger workers encourage the kind of play that might result in new products. Staff at Google, for example, are allocated a percentage of time that they can devote to a project of their own devising.

In my first library job at Penn State, Suzanne Striedieck and I had great fun speculating about better ways to catalog, shortcuts in procedures, visioning improved rules, and just chatting. Staff in the National Serials Data Program (NSDP) have fun seeing the enormous variety of serials that arrive for ISSN assignments and watching the development of new forms of digital publications with wonder and amusement. ISSN requestors have many and varied motivations for wanting ISSN and they produce a much wider range of serials than those collected by any one library—even the Library of Congress. Recently, a would-be publishing mogul sent NSDP ISSN applications for thirty-one forthcoming magazines aimed at every imaginable category of aspiring model: teen models, hair models, catwalk models, supermodels—even body part models. The publishing world gets wilder and crazier every day and catalogers are in a unique position to document that world. The verb is *enjoy*. My good wishes are for long and fulfilling careers for all present and future catalogers and cataloging leaders.

The Importance of Contributing to the Profession

By William A. Garrison

As I reflect on my own career, something that I do not do too frequently, I consider how extraordinarily fortunate I have been. When I first entered the profession (I want to stress the word profession), I was given a piece of advice. The

words went something like this: "You have chosen librarianship to be your career, and as such, you have a responsibility to give something back to the profession." I have always kept that advice in mind and have tried to give back to the profession in whatever ways I have been able. That has included teaching, serving on committees within the ALCTS CCS and the Program for Cooperative Cataloging, and currently serving as one of the ALA representatives to the International Federation of Library Associations and Institutions (IFLA) Cataloguing Section.

During my career, I have worked at institutions that have valued professional contributions such as service on committees and other professional activities as well as publishing. As I have gained more experience and began to recruit, hire, and train catalogers, I have always encouraged these librarians to be active professionally. I have also continued to be active professionally, and I am fortunate that my activities have been recognized by my peers. Two other persons on this panel served as mentors to me during various stages of my career—Janet Swan Hill and Sheila Intner.

I have found my experiences and service within ALA (especially CCS) to be very rewarding. I have a long history within CCS, serving as the chair of the Catalog Management Discussion Group, as a member and chair of the Subject Analysis Committee, as Secretary of CCS, and as chair of CCS. In my current role as a member of the IFLA Cataloguing Section, I am serving as the editor of the section's newsletter, *SCATNews*, and am a member of the ISBD Review Group where I co-chair the Consolidated ISBD Examples Working Group. I am also a member of the CCS RDA Implementation Task Force. As a result of my long career working in Association of Research Libraries (ARL) member libraries, I was selected to be a fellow in the first ARL Research Libraries Leadership Fellows program.

When I (as someone who hires and trains other librarians) think about leadership in cataloging, I want to mention three components that I believe are crucial to leadership. One key component is mentoring. I am not thinking of mentoring in terms of a program but rather in terms of training, advising, coaching, and teaching. The second component is professional growth and continuing professional development both for myself as well as for those I have trained and supervised. The third component is taking the time to have discussions about the issues facing the profession in general and cataloging in particular.

In my role as the chair of CCS, I also had responsibility for appointing people to committees. I would encourage everyone to fill out a volunteer form and seek to be appointed to a committee. The section chairs within ALCTS are always looking for good people to appoint. Please do volunteer and get involved in ALCTS and CCS. It is very rewarding, and you get to work with many great colleagues.

Subject Access Tools in English for Canadian Topics

Canadian Extensions to U.S. Subject Access Tools

By Robert P. Holley

Canada has a long history of adapting United States subject access tools, including the Library of Congress Classification (LCC), Library of Congress Subject Headings (LCSH), the Dewey Decimal Classification, and the Sears List of Subject Headings, to meet the specific needs of Canadians. This paper addresses the extensions to these American tools for English-speaking Canadians. While the United States and Canada have many similarities, differences exist that require changing terminology and providing greater depth and precision in subject headings and classification for specifically Canadian topics. The major effort has been for Library and Archives Canada (LAC) systematically to provide extensions for LCC and LCSH for use within its cataloging records. This paper examines the history and philosophy of these Canadian efforts to provide enhanced subject access. Paradoxically, French-speaking Canadians may have found it easier to start from scratch with the Répertoire de vedettes-matière because of the difficult decisions for English-language tools on how much change to implement in an environment where most Canadian libraries use the American subject access tools. Canadian studies scholars around the world can use Canadian records, especially those maintained by LAC, to obtain superior subject access for Canadian topics even if they obtain the documents from other sources.

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Introduction

Canadian libraries have long grappled with the tension between the efficiencies of using United States subject access tools and the desire to provide subject access to uniquely Canadian content when such subject access is not adequately provided by these American systems.

Classification was the easier challenge since it is not language specific. Efforts began in 1941 to devise expansions, based upon the Library of Congress Classification (LCC) that would provide greater detail for Canadian history and Canadian authors. Libraries and Archives Canada (LAC) also collaborated with the Library of Congress (LC) in developing Class KE for Canadian law. The Dewey Decimal Classification (DDC) presented fewer problems because DDC has always been open to variations to meet local needs. In addition,

Canadian librarians have worked cooperatively with DDC on revisions of Canadian topics. (In this paper, Library and Archives Canada will be used, except in quotes, even when the library was known as the National Library of Canada during the period under consideration. Library and Archives Canada was formed on May 21, 2004.)

The issue of verbal subject access posed additional challenges. For French language libraries, the decision was easier since using English language subject access systems was impossible for those libraries. Very early, the Université Laval created a translated subset of *Library of Congress Subject Headings*, the *Répertoire de vedettes-matière (RVM)*, which has gone through multiple editions since 1946.¹

The situation is more complex for English language subject access in Canada because English-speaking Canadians share a common language, albeit with some difference in spelling and meaning, with the United States. Even more importantly for subject access, “basically both countries are federal states with a division of power between two levels of government and with a population composed of groups of many ethnic origins.”² Despite these similarities, significant differences exist.

Our needs for information-retrieval terms for Canadian topics are based on the unique nature and development of our own society, which is based on 2 founding peoples, three aboriginal groups, two official languages, and many ethnic groups contributing to the Canadian multicultural mosaic. These aspects of Canadian culture cannot be adequately expressed within the constraints of LCSH. Without CSH, we would have to use terms such as “state governments” to refer to provincial governments or “foreign speakers” to refer to Canadians learning English or French as a second language.³

Since the 1960s, efforts by the Canadian Library Association and then by LAC have resulted in a list of *Canadian Subject Headings* that is now maintained within the AMICUS database and includes more than 6,000 headings plus the associated references. The last English language access tool to be discussed in this article is the *Sears List of Subject Headings: Canadian Companion*, which is now in its sixth edition and intended for use in smaller libraries.

All the Canadian tools, with the exception of *RVM*, are intended to be used as extensions to the corresponding American tools rather than as replacements. The Library of Congress officially recognizes the LAC extensions and has agreed not to take any actions that would compromise their usefulness.

This paper considers first the 1972 *Report of the Canadian Task Force on Cataloguing Standards* because of its critical importance in the history of Canadian cataloging.⁴ It then provides the history of each classification and subject heading tool, describing its principles, giving its current status, and commenting on its relationship to the corresponding United States tool where appropriate. For subject headings, the focus will be on English language tools. The *Répertoire de vedettes-matière* will be treated only insofar as this French language subject heading list is part of the national system of bibliographic control. *Canadian Subject Headings* receives the most attention as the most well developed tool within the Canadian English language context for providing subject access to Canadian specific information. The paper next briefly considers use of these extensions in various bibliographic tools and notes that additional research is required in this area. The paper finally presents a short discussion of similar developments in other English language countries before giving its conclusions.

All official LAC documents are produced in both English and French including the various classification schedules maintained by LAC. References in this paper will be to the English language versions.

Report on the Canadian Task Force Cataloguing Standards, 1972

The 1972 *Report of the Canadian Task Force on Cataloguing Standards* deserves its own discussion because of its key influence on the tools that are the subject of this paper. The Task Force came into existence due to a recommendation at the National Conference on Cataloguing Standards held at LAC in May 1970. “A Canadian Task Force on Cataloguing Standards has been set up to study and identify present deficiencies in the organizing and processing of Canadian material, and the cataloguing problems of Canadian libraries, and to make recommendations for improvements.”⁵

While concerned with all areas of cataloging, the Committee made six recommendations on “Classification of Canadian History and Literature,” five recommendations on “Classification of Canadian Law,” and eight recommendations on “Canadian Lists of Subject Headings.” The end result was much greater involvement by LAC in the support of cataloging tools. While one might be tempted to compare this new role with that of the Library of Congress, the recommendations formally state that LAC will provide support beyond its own collections as a national library and will serve both official linguistic communities—a legal status that the Library of Congress does not have in the United States since its official role is to serve the United States Congress. The specific results of these recommendations will appear in the selections below.

Canadian Extensions to Library of Congress Classification

Canadian History Classification Schedules

Multiple extensions to LCC Class F, local United States history, and the history of the rest of North and South America, appeared before LAC published its first edition of the schedule on September 1, 1976.⁶ These included variant treatments developed within the English- and French-speaking communities.

In 1941, Lamb developed the original F5000 schedule as a more detailed classification scheme for Canadian history to classify the Howay-Reid collection in the library of the University of British Columbia.⁷ He did so because “Canadian history fares almost as badly in the Library of Congress classification as it does in the decimal system” and because “whenever Canadian and American history intertwine . . . or even run closely together, the latter tends to absorb the former.”⁸ “Subsequently a number of other libraries adopted this schedule for the classification of their own collections.”⁹ In 1952, Peel at the University of Alberta provided the first major revision and expansion of this classification schedule. His library and a few others, including the University of Toronto, adopted the revised classification. The major innovation was separate numbers for regions.¹⁰ The second revision was a cooperative effort between the Public Archives and the Cataloguing Division of LAC.¹¹ It extended the period subdivision 1914–39 to 1914–45 and included 21 pages of classification schedules.

In 1969, the Bibliothèque nationale du Québec, in cooperation with other libraries in Quebec, developed a completely revised F5000 schedule that was independent of the other versions.¹² Its major change was the subdivision of historical periods by administration in keeping with LC practice. It was adopted by several Québec research libraries.¹³

At the time of the *Report on Cataloguing Standards*, all four versions were in use by at least a few of the twenty-four libraries that responded to the survey sent out in preparation for this *Report* though slightly more than the majority (fifteen) used the 1960 Public Archives edition.¹⁴ The *Report* stated that none of the four versions was “totally acceptable” and that all except the Québec version were “very much out of date in respect to chronological subdivisions and treatment of events of the last decade.”¹⁵ The *Report* noted additional “shortcomings” such as: (1) the absence of standard subdivisions for cities and towns; (2) lack of explanatory notes, references to other numbers, and an index; (3) inadequate treatment of the Canadian provinces. The *Report* then recommended that LAC appoint two experts, one in each official language, to revise the schedule by taking the best features of the four existing versions. “The revision is to follow the principles of the Library of Congress Classification.”¹⁶

The more general classification recommendations, which also apply to the Canadian literature classification schedule discussed below, were that LAC: (1) take over responsibility for the publication and maintenance of the approved schedules; (2) develop the schedules with “parallel treatment where relevant” with Canadian subject headings; and (3) have the headings reviewed by committees representing potential users and classification experts prior to publication.¹⁷

The first edition of the revised extensions for Canadian history became available on September 1, 1976, with seventy-eight pages of classification, seven tables, and an index.¹⁸ The Preface, dated January 19, 1976, states that LAC chose to use the notation “FC” to avoid conflict with the earlier versions of F5000. The Library of Congress endorsed FC as an alternative classification and promised not to use FC for its future expansions of Class F.¹⁹

“The new schedule has greater similarity to the E-F schedule for American history than the old F5000 did. It attempts to classify Canadian history more logically and in greater detail than the latter. It differs from most earlier schedules in its provision for unspecified special topics.”²⁰ The introduction also includes complex rules for the classification of biographies since biographies can be grouped with very specific topics.

The second edition of the FC Classification was published in 1994.²¹ It includes an outline, the classification schedules, seven tables, and an index for a total of around 140 pages. In comparison, Canadian history in the Gale LCC cumulation through 2004 occupies twenty-seven pages.²² Based on “its eighteen years of experience with the FC schedule,” the major changes are: (1) historical periods are brought up to date and “new established time periods for the provinces have been made broader whenever this was possible”; (2) more examples under biography and special subjects are given; and (3) names used in the schedule are established according to the AACRII, 1988 revision.²³

After that, the FC classification grew slowly. The first *Additions and Changes*, published in 1995, opened a new chronological period for Québec with only one page each for the schedules and the index.²⁴ A more important change occurred in 1999 when a second *Additions and Changes* included six pages of classification revisions occasioned by the creation of Nunavut and its effect on the Northwest Territories.²⁵ *Additions and Changes* #3 and #4 as well the second edition and earlier *Additions and Changes* are now available on the Web as PDF files.²⁶

Canadian Literature Classification Schedule

The major issue for the classification of Canadian authors has been whether to integrate or separate literature in the two official languages. The classification has otherwise

remained relatively unchanged since its creation in 1952 by McCoy, who was also responsible for the current 1978 revised edition.²⁷ The 1972 *Report* described three prior methods to resolve the issue of authorship in the two official languages. The official schedule, used in a slightly revised 1964 version by LAC, offered the choice of either using odd numbers for one language and even for the other or of classifying all materials under one set of numbers.²⁸ It was a brief schedule with nine pages including one table and a classification scheme for individual authors. The third alternative, unanticipated in the original schedule, was a mirror classification, PS9000, for French-Canadian literature. The survey taken for the 1972 *Report* determined that five libraries used the odd-even number approach to separate English and French materials, six libraries integrated the two languages, and eleven libraries classified English language materials in PS8000 and French in PS9000.²⁹

The *Report* recommended that “the PS8000 numbers are to be adopted as the standard for Canadian literature so that the English and French language materials are classified as one literature” while still retaining the even numbers and making PS9000 available for those libraries that wished to continue to use these alternative systems.³⁰ The same general recommendations described above for the FC history classification applied to PS8000 so that LAC was charged with revising, publishing, and maintaining the schedule. LAC published a revised edition as described below.³¹

The Preface to the 1978 second edition, jointly signed by J. H. Howard from Library of Congress and C. Durrance from the National Library of Canada, acknowledges that PS8000 is incompatible in principle with LC practice “both in its assembling Canadian literature regardless of language and in keeping novels with the rest of Canadian literature instead of placing them in PZ” (though the second variance has subsequently become LC practice).³² As with FC, the Library of Congress nonetheless endorsed PS8000 as an official alternative classification scheme with the assurance that it would never develop the PS8000 area for its own uses.³³

Overall, the 1978 edition of PS8000 presents a rather simple classification schedule of seventeen pages followed by a four-page index with relatively minor changes from the 1964 edition. Unlike many LC classification literature schedules, it does not make any distinction for voluminous authors but instead provides one table of subdivisions for all individual authors that is followed by an example of its application for an imaginary author. The classification seems quite stable though the LAC copy that the author examined included additional, internal hand-written annotations to help LAC catalogers by giving the cutters for special topics where authorized by the printed version.

A third edition appeared in 2003, but only as an electronic publication in PDF or RTF format. To quote the preface: “The third edition has been prepared partly

because the earlier edition has been out of print for several years, but primarily to cover new periods to reflect the passage of time.”³⁴ The general classification tables extend from pages six to sixteen followed by rules for establishing individual authors (17), “Table of Subdivisions under Individual Authors” (18), and an index (19–22). This edition eliminated the example of classification for an imaginary author that gave a specific case of how the classification might be used. One last issue worth mentioning is that classifying separately English and French literature creates the problem of how to classify Canadian literature in languages other than French or English and which language gets the primary classification if the work treats both French and English literatures with relative equality.³⁵

Classification of Canadian Law

The classification of Canadian law, Library of Congress Class KE, is technically outside the scope of this paper because KE is an official classification schedule used at the Library of Congress rather than an extension of LCC for Canadian subject content. A few words are in order, however, both because of the lengthy discussion in the 1972 *Report* and the fact that Sylvestre, National Librarian from 1968–83, claimed the development of the classification for Canadian law as one of the accomplishments of LAC during his tenure. He wrote that “bibliographic services based on Canadiana the national bibliography were improved by developing lists of Canadian subject headings and of LC classification tables for Canadian history . . . and Canadian law.”³⁶

The importance of the classification of Canadian law can be seen by the fact that the space devoted to this question in the 1972 *Report* is the same as the combined attention to Canadian history and literature. The survey described earlier that was undertaken for this *Report* showed that the sixty-five reporting libraries were using nine different methods to organize Canadian law including fifteen who chose to arrange legal materials in alphabetical order by main entry.³⁷

The *Report's* preferred recommendation was that the Library of Congress “either give responsibility to a Canadian team of legal experts to draft a schedule for KE (Canadian Law) or accept the assistance of such a Canadian team in order to expedite the publication of this class.” Only in the eventuality of LC rejecting these alternatives did the *Report* recommend “the National Library should assume the responsibility for the development of this schedule.”³⁸

LC accepted the offer of help from the Canadian library community. In the Preface to Schedule KE, published in 1977 as quoted in *National Library News*, Blume and Howard acknowledged that

the appearance of Class KE is the result of a cooperative effort between the National Library of

Canada and the Library of Congress. Ann Rae of the National Library of Canada . . . developed the schedule around the LC collection of Canadian legal materials and the printed shelflist holdings of the York University law library. The section on the law of Quebec was developed by Guy Tanguay, law librarian at the Université de Sherbrooke. The developing schedule was reviewed periodically by a committee of Canadian law librarians and the appropriate staff members at the Library of Congress.³⁹

Nonetheless, most Canadian law libraries use a modified KF classification, developed by the York University Law Library, which was published in 1982 and then revised in 1994 with subsequent additional updates to its loose-leaf format.⁴⁰ “The KF Modified system has been called Canada’s national law classification scheme. It is used at approximately 167 libraries across the country, with its popularity growing particularly among corporate libraries.”⁴¹ The KF Modified system classifies legal materials from all countries by using a Z Cutter number. LAC provides classification numbers from the KF modified schedule for its CIP cataloging but does not retain them in the permanent record in the AMICUS database.⁴²

The Dewey Decimal Classification

The Dewey Decimal Classification (DDC) poses fewer issues for Canadian libraries because, unlike the Library of Congress Classification, DDC is not based upon the literary warrant of a collection and is intended for use in a broad range of libraries around the world. DDC provides options for libraries to adapt its classification to local needs and to the scope of individual collections. The 1972 *Report* did not have any recommendations to make about DDC and noted that “the subgroup did not concern itself with the Dewey Decimal Classification which, in any event, provides an acceptable standard for those using it though local practices may vary somewhat.”⁴³

Modifications to DDC at LAC include: (1) using the optional Canadian numbers for the struggles between France and England for Canada, for the War of 1812, and for Pontiac’s Conspiracy rather than the preferred American history numbers; (2) upper-case “C” for Canadian literary works; and (3) using lower-case “j” for works directed to be read by juvenile readers; and (4) ignoring instructions to divide alphabetically because of the potential problems where a name differs between English and French.⁴⁴ The report on the results of a survey in 1987 on the use of DDC

in Canadian libraries stated that “as far as the National Library’s options for Canadian history, juvenile literature, and Canadian literature are concerned, the first two are the most heavily used.” “The overall impression created by the responses is that the libraries participating in this survey are generally satisfied with National Library policies.”⁴⁵

The Dewey Services unit at OCLC provides suggested DDC numbers for *CSH* headings. According to their Web site: “Each month, the Dewey editorial team maps new *CSH* (sic) to candidate numbers from the current DDC edition. The goal of the service is to associate terminology for Canadian topics of interest with the DDC.” This service started in December 2003 and is based upon the monthly lists of new *CSH* headings produced at LAC.⁴⁶

Canadian Subject Headings (CSH)

History

Canadian Subject Headings (CSH) is the most important tool for access to Canadian content not covered in specific enough detail by the Library of Congress tools. *CSH*, whose current version has slightly more than 6,000 headings, has a long history. The Technical Services Section of the Canadian Library Association took on the creation of this list in the 1960s. The first “preliminary edition,” cited with a 1964 date, may not have been published because no library lists holdings for this edition in the AMICUS database of Canadian library holdings. A typescript “partial edition” of *A List of Canadian Subject Headings* appeared in 1966.⁴⁷ The *List* has 48 pages with about 12 entries per page (both headings and cross references). The introduction states that (1) “headings have been selected mainly from the Library of Congress list of subject headings”; (2) additional references have been added to *LCSH* headings “to provide for the Canadian point of view”; (3) “L.C. subject headings have been modified to adapt them more closely to Canadian terminology”; and (4) “new headings have been added where circumstances require them.”⁴⁸ This edition also provides guidance on valid subdivisions with “Canada” and “Alberta” as the models and promises additional model subdivisions in subsequent editions.

A more official, hardbound version from the same committee and with the same authors appeared in 1968 as *A List of Canadian Subject Headings* with the cover title, *Canadian Subject Headings*.⁴⁹ Stated to be the “first edition,” it expands coverage substantially to 90 pages with about 10 entries per page: “This list of subject headings contains headings in English for topics that relate to Canada and is intended for use by cataloguers handling Canadian materials. It is designed to supplement and to be used in conjunction with the Library of Congress list of subject headings.”⁵⁰ It follows the same principles as the

1966 “partial edition,” adding Toronto as the example city subdivision and providing specific period subdivisions for each province under the topical subdivisions “Description and travel,” “Economic conditions,” “History,” and “Politics and government.”

The 1972 *Report* stated, “libraries agreed that *A List of Canadian Subject Headings* was very useful and expressed a desire for a revised and enlarged edition.”⁵¹ The library survey used in preparing the *Report* indicated that “about half the libraries surveyed used *A List of Canadian Subject Headings* and that they were especially interested in further expansion in the areas of “education, cultural groups (including native peoples), historical events, historical and literary periods, municipal matters, northern development, politics, provincial matters, and social issues.”⁵² The *Report* recommended that LAC continue to accept *LCSH* “as the basic standard English subject heading list,” that “a separate Canadian list be established as a standard for Canadian topics not adequately covered in the Library of Congress subject headings list,” and that “development of this list should take into account the existing publication, *A List of Canadian Subject Headings*.” It also recommended that such a list clearly distinguish between LC and Canadian headings.⁵³ After a discussion of French language subject headings, the *Report* recommended that LAC be responsible for the development, publication, maintenance, and updating of the list including regular publication of additions and changes.

The first LAC edition of *Canadian Subject Headings* appeared in 1978.⁵⁴ It includes an extensive introduction, the list of headings and cross references, an English-French index, and a French-English index. This edition has 3,300 headings along with the associated references and scope notes.⁵⁵ The preface by Durance, Director, Cataloguing Branch, states, “*Canadian Subject Headings* was developed in response to a need in Canada for standardization in the subject analysis of topics related to Canada.” She continues on to say that “it supersedes *A List of Canadian Subject Headings* published in 1968 by the Canadian Library Association and is intended to serve as the English language standard for the subject control of Canadian topics.”⁵⁶

The introduction to the 1978 edition defines its scope to include “not only headings which deal with Canadian topics in detail (such as Canadian history and literature) but also a selection of headings from various fields where there is a considerable body of Canadian material or where Canada has a major interest, e.g., Mines and mineral resources.”⁵⁷ Period subdivisions for Canadian history correspond to those in the FC classification and period subdivisions for Canadian literature to those in the PS8000 schedule. This edition of *CSH* implements one of the 1972 *Report’s* recommendations by using a system of notations to indicate the relationship between the *CSH* heading and *LCSH*:

= means heading identical to LC;

≠ means different from LC;

// means heading is analogous to what LC has used in the American context;

+ means heading itself is identical to LC but the *sa* references, *x* references, *xx* references, *xx* references and *and/or* notes are different.⁵⁸

LAC promised in the 1978 edition that “regular supplements incorporating revisions and additions to *Canadian Subject Headings* will be issued periodically to update the present list.”⁵⁹

Schweitzer, LAC subject cataloging expert and the person with primary responsibility for *CHS*, wished that there had been more time to prepare the first LAC edition of *CSH*. She was concerned that the number of headings was “not as extensive as it might have been under more favorable circumstances” and also worried about its theoretical underpinnings.⁶⁰ She set as a goal for the next edition the “enhancement of those qualities of rationality, consistency, thoroughness, and usefulness which suffered most from the exigencies attending on the preparation from the 1978 list.”⁶¹ While much work had been done, she recognized that the key task of developing a consistent theoretical basis for *CSH* remained:

We need to think out and formulate broad principles of approach, general patterns and procedures to follow in order to produce a list of subject headings that is accurate, comprehensive and truly useful to the varied public which will be using it. The ideal to strive for is the maximum of specifically Canadian coverage with a minimum of divergence from *LCSH* since in the great majority of cases the two lists would be used in tandem in Canadian libraries.⁶²

In addition, she recognized the general problem that a specialized list faces in creating a syndetic structure with a limited number of headings. She understood the seriousness of this issue because she believed that a “collection of subject headings which merely lists the concepts without demonstrating their relationships, both horizontal and vertical, can be of only limited use as a tool of subject analysis.”⁶³

A 1983 announcement of the next edition of *CSH*, two years before its appearance, repeated the needs to enhance the list “to incorporate new policies of the Library of Congress”; to add concepts created since the 1976 cutoff date “or which have somehow escaped scrutiny in preparation of the first edition”; and to enhance the “uniformity of

approach, treatment, thoroughness and consistency, as a result of experience with the list by the National Library and other users over the last two years.”⁶⁴

Canadian Subject Headings, Second Edition/Deuxième Édition, was published by LAC in June 1985.⁶⁵ It included introductory matter; headings and cross references; English-French Index: Headings; English-French Index: Subdivisions; Index français-anglais: vedettes; and Index français-anglais: subdivisions. It also included approximately 1,440 headings and 765 subdivisions. While the author was unable to find official statistics on the number of subject headings, counting the number of headings in the two indexes gives a total of approximately 1,440 headings and 765 subdivisions that then can be combined to create additional complex subject headings.

The 1985 “Rationale for a New Edition of CSH” indicated the extensive philosophical changes in this edition:

This completely reworked and enlarged edition is more than a relisting of the contents of CSH1 with changes and additions. It reflects considerable experience gained by the National Library of Canada (NLC) in the course of applying CSH in the intervening period and it incorporates numerous comments and suggestions contributed by the many and varied libraries which rely on CSH for the cataloging of Canadian materials. CSH2 represents as well a new approach to subject analysis, which attempts to minimize the difficulties of the user who must deal with a subject retrieval system which has in recent years become vast and very complex and which is changing at a furious pace.⁶⁶

Major changes in the 1985 edition included fewer headings that differed from *LCSH*, much expanded scope notes and instructions, an increased number of references, a revision of chronological subdivisions, and the separation of the indexes into headings and subdivisions. The earlier symbols used to indicate the relationship of the heading to *LCSH* were replaced by a new notation, “CSH”, for headings unique to *CSH*.⁶⁷

After the major reworking of the second (1985) edition, the third edition of *Canadian Subject Headings*, published in 1992, provided only incremental changes.⁶⁸ The total number of pages increased to 603 (26.4 percent) from the 477 in the second edition. The format remained the same. Schweitzer stated that the third edition had 6,000 headings.⁶⁹ This is probably an overestimate since the April 2006 count of *CSH* headings online is 6,082.⁷⁰ The annual increase in the number of *CSH* headings has been approximately 75 to 100 topical subject headings or 175 to 200 total headings if one includes geographic names used as subjects.⁷¹

The 1992 introduction stated, while the second edi-

tion of *CSH* represented a major change, “this new edition builds on its predecessor and continues its policies as they were formulated in the introduction to *CSH2*.”⁷² Much of the introductory matter on scope, aims, and relationship to *LCSH* is nearly identical to *CSH2*. Perhaps part of the reason for this continuity, the introduction continues, is that “the favourable response from our body of users who overwhelmingly found *CSH2* contents useful and its format convenient is both gratifying and reassuring. We plan to continue along the above stated lines.”⁷³ From the Canadian perspective, the most notable expansions in the third edition were “for topics dealing with the Canadian native groups” and “directional” geographic headings for regions of the larger Canadian provinces. Another major change was the abolition of the “city flip” in keeping with changes in *LCSH*: “Until 1985, the *Subject Cataloging Manual* and *Library of Congress Subject Headings* provided two separate list of subdivisions under places, one for cities (H1135) and one for regions, countries, etc. (H1145). When the city flip was discontinued (cf. H832), it was possible to resolve the few remaining discrepancies between the two lists and to consolidate them into a single list of subdivisions used, as applicable, under regions, countries, cities, etc.”⁷⁴ At this time, LAC did not follow *LCSH*’s decision to change from the subject heading list terminology (see, see also, see also from, etc.) to a thesaurus structure (use for, narrower term, broader term, etc.). This change occurred later when *CSH* became part of AMICUS in 1997.

CSH3 was the last complete printed edition. Semiannual supplements continued to be printed through Supplement 12 in 1999.⁷⁵ Since 1997, authority records have been available in the AMICUS database where they can be viewed either in thesaurus-like display or in MARC format.⁷⁶ Since October 2000, users have been able to search both “*CSH on the Web*” and “*RVM on the Web*” by browsing, by specifying exact terms, or by keyword searching. Headings are updated monthly; an archived version of each individual update is available in both PDF and RTF for those who wish to track changes.⁷⁷ The AMICUS version of *CSH* is more complete than earlier printed editions because it includes specific events—such as individual strikes, buildings, and lakes—that were intentionally left out of printed versions.⁷⁸ Finally, a 19-page list of authorized subdivisions can be consulted in the PDF format.⁷⁹

Current Maintenance of CSH

The creation of new headings is based upon literary warrant, which means that a new heading will be created only when an item to be cataloged justifies the new term. The cataloger, after having done some preliminary research, submits the proposal to the *CSH* editor, who is responsible for both topical and geographic subject headings. The editor then checks

reference sources, double-checks both *LCSH* and *CSH* for a possible existing heading, and then formulates a heading in keeping with LAC and LC policies as applicable. According to LAC policy, each subject heading should have at least one reference, which can be a reference to a broader term. If the heading is a candidate to be sent to LC for possible inclusion in *LCSH*, the editor first consults with the Subject Headings Editorial Committee at LAC. Otherwise, the editor adds the heading directly to the AMICUS database. In addition, the editor sends the heading, along with a list of sources consulted, to the *RVM* section at the Université Laval for an equivalent French heading to appear in *Canadiana* (the national bibliography) and other LAC cataloging products for distribution.

Triggers for revised headings, including cancellations, can be updates to LC or LAC policy (such as the recent change from Quebec to Québec), comments from catalogers, or the editor's knowledge of changes in terminology. LAC also invites questions and suggestions for new or revised headings and receives about twenty-five annually.⁸⁰

Relationship with *LCSH*—Differences

Schweitzer, who retired in 1995, was mainly responsible for putting *CSH* on a firm theoretical footing. Her writings often mention the tension between, on the one hand, following *LCSH* for its comprehensiveness, its usefulness in sharing catalog records, and its status as one of the library world's most important information seeking tools and, on the other, providing suitable access to Canadian content. She emphasized this conflict in "Subject Access to Library Materials in Canada: A Balancing Act between Conformity and Divergence."⁸¹

Elsewhere, she wrote less diplomatically about *LCSH*: "Nevertheless situations occur where a general system of subject retrieval terms, particularly one still not free from purely American attitudes, biases and distortions of scale, cannot adequately retrieve topics of Canadian interest."⁸² Yet she recognized that *LCSH* is the way it is because it does what it is supposed to do—it mirrors the interests of the Library of Congress as the de facto national library for the United States and provides access, based on literary warrant, to a collection that "puts main emphasis on topics reflecting the nature of American society."⁸³ She also recognized that *LCSH* does not have the goal of serving as an international tool in the same way that the DDC does. She quoted Barbara L. Berman: "LC should not be expected to alter its own cataloging policies simply to suit the needs of other libraries; it is the other libraries that must determine how best to adapt LC cataloging for their own purposes."⁸⁴ Schweitzer acknowledged the importance of LC's products within the world of bibliographic control in an interview with Winston: "If our system differed too much from *LCSH*, Canada would

be left out of the world information network."⁸⁵

On a more practical level, English-speaking Canadian libraries depend so heavily on Library of Congress cataloging products that the less *CSH* diverges from *LCSH*, the easier it will be for these libraries to adopt *CSH* when there are important rather than trivial reasons for doing so.

The principle in *CSH* therefore became as stated in the introduction to *CSH2* 2nd edition that "new divergent headings have been created only when the purely American context of the *LCSH* heading has proven inappropriate to our needs due to the differences in sociopolitical structure between Canada and the United States, as in the area of the legal system or official bilingualism."⁸⁶ Additionally, "minor variations such as differences in spelling, word order or actual terminology are not usually sufficient grounds for creating divergent headings since these matters are quite adequately handled with references; nor are divergent headings established without a thorough investigation and weighing of options."⁸⁷ Schweitzer summarized this as "the ideal to strive for is the maximum of specifically Canadian coverage with a minimum of divergence from *LCSH* since in the great majority of cases the two lists would be used in tandem in Canadian libraries."⁸⁸

The following are the main areas in which *CSH* explicitly diverges from *LCSH*:

1. *Minor changes because of political and cultural differences.* In many areas, *CSH* retains the *LCSH* structure while making minor changes such as substituting "Province" and "Provincial" for "State"; using "Crown" or "Royal" where appropriate, and adding "Canada—History—War of 1812" for events that occurred in Canada.⁸⁹
2. *Ethnic versus linguistic.* *LCSH* does not make the distinction between the ambiguity in English of using adjectives such as "English," "French," or "German" to describe either a language or a group of people. "In a Canadian context of linguistic duality and cultural pluralism, it was desirable to formulate subject headings in a manner which permits the differentiation of the two meanings." Thus in *CSH* the adjective in parentheses consistently refers to language while the nonparenthetical form denotes the ethnic/cultural group. Therefore "Almanacs, Canadian (Italian)" is the subject heading used for almanacs published in Canada and written in Italian.⁹⁰
3. *Ethnic groups in Canada.* While *LCSH* uses the term "Italian Americans", similar constructions are not used for other countries so that "Italians—Canada" covers the two concepts that *CSH* divides by using "Italian Canadians" for Canadians of Italian origin and "Italians—Canada" for non-Canadian Italians in Canada.⁹¹

4. *Two official languages.* In *LCSH*, all languages other than English are “foreign languages”; and their speakers are “foreign speakers.” This policy is impossible in the Canadian context with two official languages because a native speaker of either English or French who is learning the second language is not learning a “foreign language.” Thus, *LCSH* “French language—Textbooks for foreign speakers” becomes “French language—Textbooks for second language learners” in *CSH*.⁹²
5. *Terms for aboriginal peoples.* Many Canadians, including subject experts, use different terminology for aboriginal peoples than their American counterparts. Therefore Canadian discourse including published research justifies different headings in keeping with the principle of literary warrant. For *CSH*, the *LCSH* “Eskimos” were “Inuit” long before *LCSH* accepted the latter term. Canada also has three groups of native ancestry recognized by the census: Indians, Inuit, and Métis. For works about all three groups collectively, *CSH* has created the subject heading “Native peoples—Canada.” Terminology varies for the names of some tribes so that the *CSH* “Huron Indians” corresponds to *LCSH* “Wyandot Indians.” The chronological subdivisions for various headings such as “Indians of North America—Canada—Government relations” and “Indians of North America—Canada—Wars” “were worked out specially for *CSH*, since the *LCSH* periods may only be used for the American context and, being based on significant dates in American native history, are not appropriate for Canadian materials.”⁹³ Future changes are also likely in this area since many Canadian experts and Canadian libraries are unhappy with the term “Indians of North America” and would like to agree upon a more culturally sensitive alternative.⁹⁴
6. *Limited number of additional authorized subdivisions.* “A small number of subdivisions are unique to, or have been modified for *CSH*.” As of April 2006, there are fourteen, most of which are connected with the *CSH* divergences listed above. Examples include “Asian-Canadian authors,” “Films for second language learners,” and “Speeches in Canadian Parliament.”⁹⁵

Some of the differences between *LCSH* and *CSH* are not so much divergences but rather extensions of *LCSH* practice within the Canadian context:

1. *More and different references when topics are subdivided by Canadian geographical entities.* Although in most cases, *LCSH* would authorize the use of the geographic subdivision, *CSH* includes many more references to help the user within the Canadian context.⁹⁶
2. *More detailed chronological subdivisions.* Since “*LCSH* offers no period subdivisions for Canadian provinces

and many fewer than *CSH2* for Canada as a whole,” *CSH* provides many more chronological subdivisions for all appropriate areas of Canadian content.⁹⁷

On a more philosophical level, Schweitzer made very clear that she considered the increased user friendliness of *CSH* to be a divergence from *LCSH*. “Lastly, *CSH* is at all times aware of the need to be ‘user-friendly’. . . . *CSH* has put great emphasis upon user guidance.”⁹⁸ Special features of *CSH* include the introductory part with “a user’s manual whose main arguments, though always illustrated in Canadian context, do not apply solely to Canadian topics but to subject retrieval by subject headings in general.” *CSH* provides many more scope notes and references than *LCSH*. Schweitzer noted that *LCSH* has one scope note for every three pages while *CSH* averages three scope notes per page.⁹⁹ Overall, she was pleased that “these particular features of *CSH* have evoked much favorable response from its body of users, amply demonstrating that the effort was worthwhile.”¹⁰⁰

Taken as a whole, *CSH* achieves its goal of providing more explicit access to Canadian subject content while remaining within the *LCSH* structure. *CSH* has implemented major *LCSH* changes such as the city flip, thesaurus notation, and new policies for geographic subdivision, and will undoubtedly continue to do so in the future. The author believes that any user familiar with an *LCSH*-based bibliographic tool would have no difficulty in successfully adapting to a mixed environment of *LCSH* and *CSH* headings and might not even notice the difference.

Relationship of *CSH* with *LCSH*—Cooperation

Notwithstanding any philosophical divergences with *LC*, *CSH* has benefited from excellent practical relations between *LAC* and *LC*. Their mutual status as national libraries and distributors of cataloging products has facilitated cooperation and relationship building among the key experts in bibliographic control at both institutions. Various meetings of national libraries at IFLA; groups such as the Association of Bibliographic Agencies of Britain, Australia, Canada, and the United States (ABACUS); and cataloging policy-making bodies such as the Joint Steering Committee for the Revision of the Anglo-American Cataloguing Rules provide excellent opportunities for communication and relationship building between the two institutions, even when *CSH* is not high on the list of discussion topics. One difficulty for *RVM* is that its sponsor, the Université Laval, is not a national library.¹⁰¹

Efforts at cooperation go back to 1976, two years before the first edition of *CSH*. A 1975 cooperative agreement between *LC* and *LAC* on name headings included the provision that “all new topical subject headings created by

the National Library of Canada which are not specifically related to Canadian cultural and historical context will be submitted to the Library of Congress for possible incorporation into *Library of Congress Subject Headings* . . . though the National Library of Canada will develop those subject headings which are uniquely Canadian and publish them separately."¹⁰²

During the 1980s, steps toward closer cooperation occurred within the context of ABACUS. At the Fifth Meeting on International Cataloguing Cooperation, it was reported that "NLC had already had some discussion with LC concerning the submission of some 4000 headings covering topics peculiar to Canada contained in *Canadian Subject Headings*" and that "LC agreed to take up the matter" especially since at LC "there was a discernable movement away from the principle of not holding subject headings for which there were no corresponding bibliographic records."¹⁰³ At a followup meeting, "LC opened the discussion by stating that it is establishing procedures for incorporating contributions of Canadian and Australian subject headings into its *LC Subject Headings*."¹⁰⁴

Tangible results from any cooperation, nonetheless, had to wait until 1994 when LAC became an early participant in the Subject Authority Cooperative Program (SACO).¹⁰⁵ The first three headings from LAC accepted for *LCSH* were "Hockey for women," "Physically handicapped young adults," and "Loneliness in old age." All three were based upon literary warrant from publications cataloged at LAC.¹⁰⁶

Between 1994 and 2006, LAC submitted approximately 550 proposed headings or about forty-five annually. The great majority of them have been adopted. Most of the six rejections during this period were for technical reasons, though one or two were not acceptable because of their subject terminology.¹⁰⁷ The advantage to LAC from this cooperative effort is that it reduces the number of entries from *CSH* in the AMICUS database and simplifies integrating subject headings into the OPAC for those libraries that have exception routines for adding *CSH* headings.

Users of *LCSH* also benefit from this relationship. *CSH* is listed in the *LC Subject Cataloging Manual* as a source for new headings.¹⁰⁸ *CSH* also is given as a link on the Cataloger's Desktop and on SACO's home page.¹⁰⁹ LC has adopted headings for *LCSH* such as Inuit and Métis that originally appeared in *CSH*, may consult with LAC about possible new subject headings additions and changes with Canadian content, and cites *CSH* as a source of new headings.¹¹⁰

Sears List of Subject Headings: Canadian Companion

The final product that modifies an American tool for purposes of Canadian subject access is the only treated in

this paper without any official connection with LAC. *The Sears List of Subject Headings: Canadian Companion*, currently in its sixth edition, first appeared in 1978.¹¹¹ The "Introduction" to the sixth edition states:

The original compilers developed the Canadian Companion to the *Sears List of Subject Headings* to fill a continuing need for a list of supplementary subject headings pertaining to Canadian topics for use in small and medium-sized libraries. It covers in some depth distinctively Canadian topics, notably those relating to Canadian history, politics, and constitutional matter; the official languages; and the multicultural nature of Canadian society. It also includes other relevant though not uniquely Canadian topics.¹¹²

The current edition has twenty-six preliminary pages that include the introduction, symbols used, and a list of canceled and replacement headings followed by seventy-five pages of subject headings and references with about forty entries per page. The *Companion* is not comprehensive and is intended to be used with the full *Sears List of Subject Headings*. Schweitzer reported that "*CSH* has had influence on *Sears Canadian Companion* which generally pursues similar aims and objects and has also adopted, sometimes with simplifications, much of the specifically Canadian vocabulary of *CSH*."¹¹³ While the same remains true in general for the current edition, no simple one-to-one correspondence exists between subject headings in *CSH* and *Sears*.¹¹⁴ For example, one of the major changes in the current *Sears* edition is the use of "First Nations for Indians of North America," a major revision that has not yet occurred in either *LCSH* or *CSH*.¹¹⁵

Use of the Canadian Subject Tools Library and Archives Canada

LAC uses both the LCC extensions and *CSH* for its own cataloging. Its current records appear in the AMICUS database; on the three-disc CD-ROM version of *Canadiana*, the national bibliography, now that a printed version is no longer published; and on its cataloging data tapes for distribution. These subject access tools are not present in all records, however, because LAC has three levels of cataloging. Only full cataloging (41 percent in 1998) includes both LC classification and subject headings while minimal level cataloging (39 percent) provides LC classification for most items. The abbreviated level (20 percent) includes no subject headings and classification only if needed for shelving. Nonetheless, 55 percent of Canadian monographs receive full treatment, including virtually all trade

monographs through the Cataloging in Publication (CIP) program.¹¹⁶

Other LAC products that have used the subject extensions are:

1. The Canadian Institute for Historical Reproductions Catalogue—the catalog followed the same standards as *Canadiana*.¹¹⁷
2. Canadian Information by Subject—this guide to Internet resources about Canada uses *CSH* for appropriate subject headings but chose DDC for classification.¹¹⁸

The production of CIP records is a distributed process in Canada. The participants may consult with the *CSH* editor at LAC about establishing new headings in CIP records or may tentatively establish new headings on their own. The *CSH* editor then reviews all subject assignments for the final record and may make changes. The CIP records may also use the LCC Canadian extensions in addition to *CSH* headings.¹¹⁹

Other Canadian Users

Evidence on the use of the Canadian subject extensions by other Canadian libraries is difficult to find. LAC has taken measures to simplify the use of *CSH* and the LCC extensions by coding them in the MARC records and by usually including a “see/use” reference in its authority records where a *CSH* heading replaces a *LCSH* heading. In this way, other libraries can identify Canadian subject extension during automatic data loading from various sources. An article by Beheshti, Large, and Riva discusses the cost savings from using MARC records produced by LAC, but does not include any specific references to the Canadian extensions to *LCC* and *LCSH*.¹²⁰ The extent to which Canadian libraries make such changes is an important topic for future research.

A preliminary report on *Status of Conversion of F to FC (Canadian History) in CARL 1988* showed that the fifteen of the eighteen Canadian academic research libraries that were members of the Canadian Association of Research Libraries (CARL) at that time had either reclassified Canadian items in F to FC or had plans to do. The remaining three that did not intend to reclassify materials nonetheless used FC for current cataloging. Eight had completed this reclassification.¹²¹

In 1998, LAC surveyed Canadian libraries on the use of *CSH* and had a 43 percent response rate. Of the respondents, 42 percent were public, municipal, or regional libraries; 25 percent were university or college libraries; 16 percent were federal government libraries; and the rest were special or school libraries, bookstores, and other. The results included the following findings: (1) respondents’ top three reasons for using *CSH* were to identify authoritative

subject headings for assigning to bibliographic records (33 percent), to create a subject authority file (20 percent), and to find English/French terminology on Canadian topics (19 percent)—they also used *CSH* for reference work, for cataloging instruction, and as an indexing tool; and (2) 57 percent of respondents used both the English/French and French/English indexes.¹²²

The minutes of the 2005 annual meeting of the Technical Services Interest Group and the Serials Interest Group at the Canadian Library Association Annual Conference included a discussion about the use of *CSH* by Canadian universities. The minutes state:

Representatives in attendance from various libraries cited different practices. Some retain *CSH* headings if they are in the record, but do not add them if they are not. Some retain them when there is no LC equivalent. Some add *CSH* headings in some cases, based on a list of headings and subject areas that are not well covered by LC.

Different authorities vendors also have different practices: some prefer a *CSH* heading over an LC equivalent; some include a *CSH* heading only when there is no LC equivalent. Some of the vendors are also not adding *CSH* updates to the databases.¹²³

The author discovered that detecting *CSH* usage in the Canadian union list version of AMICUS was inconclusive because many *CSH* headings are miscoded as *LCSH* headings. A systematic study of these records might yield useful data on how Canadian libraries use *CSH* headings.

Use by Canadian Studies Scholars

The LCC extensions and especially *CSH* can help scholars outside Canada even if they intend to retrieve their documents from a non-Canadian source. Some evidence exists that this occurs. The *CSH* editor believes that *CSH* has users in other countries on all continents, such as national libraries and universities offering Canadian studies or containing large collections of *Canadiana*.¹²⁴

Since AMICUS is freely available on the Web, Canadian studies scholars can search the database with *CSH* terms either for LAC materials or for items in the Canadian union catalog. Scholars can also browse headings in classification order for FCC and PS8000 at libraries where this function is available though this is not an option in the AMICUS database. Such searches are more effective in identifying Canadian materials than those that use less Canada specific tools, such as LCC and *LCSH*. Canadian studies scholars who find citations for relevant materials through these

searches may be able to consult them in their local library or through interlibrary loan.

Similar Work in Other English-Speaking Countries

Evidence of similar efforts in at least one other English-speaking country exists. Following up on a report from an ABACUS meeting, the author learned that the Library Association of Australia published *A List of Australian Subject Headings* in 1981.¹²⁵ Similar to the Canadian experience, the National Library of Australia has taken over the process through its Australian National Bibliographic Database Section. The Australian Subject Access Project aims “to maximize the impact of online access to Australian subject terms. It is based on the second edition of List of Australian Subject Headings, an unpublished ALIA work, commonly called SLASH, which will gradually be implemented on the Australian National Bibliographic Database.”¹²⁶ The information on the National Library of Australia Web site presents a very comparable picture to that of LAC regarding the reasons for the extensions, their format, and their use.

Chan reports that “libraries that have adopted, translated or adapted controlled vocabularies based on *LCSH* include those in Belgium, Brazil, Canada, the Czech Republic, France, Great Britain, Lithuania, Malaysia and Portugal.”¹²⁷ The author has not found evidence of national level extensions in English for any of these countries. The *CSH* editor has received inquiries from institutions in countries such as the United States, Australia, New Zealand, South Africa, and Algeria about various aspects of *CSH* and its local implementation.¹²⁸

Conclusions

1. *Library and Archives Canada as a national library is the appropriate agency for the maintenance of FC, PS8000, and CSH.* As a national library, LAC brings great strengths to maintenance of the Canadian extensions to LCC (FC and PS8000) and *CSH*. First, as the beneficiary of legal deposit, LAC has the most extensive access to materials published in Canada even if not all these items receive full cataloging. Second, LAC has influence throughout Canada as the leading producer of cataloging records for Canadian materials. Third, LAC has provided stable funding for these resources that would have been difficult to maintain through either voluntary efforts by professional associations or through a consortium of libraries.

2. *LAC has been correct in choosing to diverge from LC products only when absolutely necessary for specific subject access to Canadian content.* In an era of reduced resources, making changes with the most impact is the best strategy since it reduces the costs to other libraries in adopting the specifically Canadian headings.
3. *Creating country-specific subject headings in the same language as LCSH may be more difficult than recreating LCSH in a new language.* Paradoxically, the author believes that it may be more difficult to create extensions to subject headings in English than it is to start from scratch in another language. Establishing a translated version of *LCSH*, especially if based upon literary warrant, can independently build upon the linguistic principles and established terminology of the new language. Establishing extensions to *LCSH* involves more complex decision making on when to create a subject heading because of the tension described earlier in the article between conformity and divergence. Building upon *LCSH* also requires modifying these subject headings to reflect changes in *LCSH* policy to make them compatible for retrieval systems that use both *LCSH* and the *CSH* extensions.
4. *More research is needed on the use of FC, PS8000, and CSH by Canadian institutions.* An analysis of the use of the Canadian extensions by Canadian libraries would be an excellent topic for future research.
5. *Canadian studies scholars could benefit from using FC, PS8000, and CSH even if they plan to obtain their resources from non-Canadian sources.* Canadian studies scholars are able to obtain more specific access to Canadian topics by using access tools such as the AMICUS database. These tools provide greater subject specificity even if scholars plan to obtain the materials from other sources.

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Defining and Achieving Success in the Movement to Change Scholarly Communication

By Joyce L. Ogburn

In the pursuit to change scholarly communication, libraries have undertaken a number of initiatives. These may include establishing a formal program, creating a committee, or taking other concerted actions at their institutions. While librarians have been engaged in targeted activities for some time, there has been no attempt to describe what constitutes a successful program. This paper proposes that five stages that are experienced in organized attempts to change scholarly communication, arguing that the use of stages provides a practical approach to addressing a nearly intractable problem. The author defines these stages, offers illustrative examples, provides measures of success, and details strategies that support the efforts toward change.

Defining and Achieving Success in the Movement to Change Scholarly Communication

Over the last few decades, the system of scholarly communication—the creation and dissemination of the products of research and learning—has been perceived by many librarians and scholars as approaching a crisis point. They have challenged the prevailing culture and methods of scholarly communication as library acquisitions budgets have decreased, prices for journals have risen, monograph purchases have declined, the economic underpinnings of publishing have changed, the use of licensing has risen, access to scholarship has been curtailed or lost, and advancing technology has posed new challenges and opportunities. One primary response of libraries has been to initiate a local program or charge a committee to lead local efforts with the hope of achieving revolutionary change throughout scholarly communication. Library professional associations and other organizations such as the Association of Research Libraries (ARL) and the Association of College and Research Libraries (ACRL) have initiated programs as well. As yet, no attempt has been made to delineate clear indicators of success of these programs. This paper will propose and define a series of stages that a library program may experience, describe the markers of success, and suggest strategies that may lead to fundamental change.

Defining stages is one method used to understand personal, social, or programmatic evolution or change. One could argue that scholarly communication

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The genesis of the ideas discussed in this paper grew out of the author's presentation, "Scholarly Communications: From Awareness to Understanding to Ownership," at the Association of Library Collections and Technical Services Scholarly Communications Discussion Group, American Library Association Midwinter Meeting, Philadelphia, January 27, 2003. Versions of this paper have been distributed at the Association of College and Research Libraries/Association of Research Libraries Institutes on Scholarly Communication.

programs established by libraries will advance through a series of stages before achieving real and lasting change. Defining and applying the concept of stages to scholarly communication can help establish and guide a program by setting directions and goals, tracking progress, identifying landmarks, and noting achievements.

This paper proposes five stages, starting with creating awareness and progressing to achieving transformation. The stages reflect an evolution from local action to collaborative efforts, with the goal of achieving widespread change. Most scholarly communication programs initially will concentrate on local efforts and strategies, but in time they should build broad-scale coalitions of organizations and individuals that share the desire to create new models of scholarly communication. Tying changes directly to any single action, initiative, or program can be difficult; progress tends to proceed unevenly, and social change is a disorderly process. Local actions, however, can lead to global changes. As programs mature, they will expand their agendas and activities beyond their local institution and, as the rhetoric grows more sophisticated, the evidence of unsustainability more apparent, the arguments more persuasive, and the authors more moved to action, library programs will gain greater results. In the following exploration of the stages, the author suggests that local programs may produce the most viable and visible systemic change only by engaging professional associations, consortium partners, scholars, scholarly societies, publishers, and other stakeholders.

Stages: From Awareness to Transformation

The five stages proposed are awareness, understanding, ownership, activism, and transformation. For the purposes of this paper, the following definitions will be used. Awareness means being conscious and having knowledge of issues. Understanding represents a higher order of knowledge, intelligence, and appreciation. Ownership connotes commitment and obligation. Activism is goal-directed, concerted, and purposeful action. Transformation equates to attainment of a profound alteration of assumptions, methods, and culture.

The following section applies these definitions to the problem of scholarly communication and describes the characteristics of each stage, accompanied by markers of success and examples that illuminate the conceptual model of each stage. Although many libraries are able to determine how to create awareness and some degree of understanding on campus, some markers for success are worth noting. Not all libraries have launched programs and many others are in early development stages or have informal initiatives. The difficult transitions are moving from understanding to ownership and then on to activism and transformation. Given

these assumptions, this paper will briefly describe success in achieving awareness and understanding, and then will focus on the attributes that mark progress in the latter stages.

Awareness

During awareness, the issues connected with scholarly communication are perceived in simple terms of high prices and constrained budgets. Librarians have knowledge of the underlying problems and infrastructure of scholarly communication and track new developments. They may lay the blame for the problems on publishers and publishing practices. Scholars and administrators are acquainted with the issues, key points, and rhetoric. At this stage, the challenges associated with high inflation and serials pricing generally are perceived as confronting the library, not the academy and the parent institution. Absent is recognition of the complexity of the problems permeating the overall system.

Awareness is the early knowledge that a problem exists; the nature of the problem is still being formulated and the issues framed. Journal pricing is seen to be the main issue to be addressed. Librarians may be the most knowledgeable players at this stage and begin to share their concerns and observations with others. This stage is marked by complaints and limited conversations, but concentrated efforts are put toward researching and comprehending the problem. Faculty and administrators may listen to what librarians have to say, but the issues do not have meaning for them yet.

Understanding

As awareness gives way to understanding, scholars fully appreciate the challenges and relate them to their discipline or areas of interest. They are able to discuss the basic issues and repeat well-known facts. They realize that the practices underlying scholarly communication and publishing affect access to scholarship. The problem still may be seen as one primarily confined to the library. Academic administrators express concern, but take no action and provide little concrete support for challenging the practices that have produced and underlie the issues. In the library, concern becomes alarm, as the implications of what is termed "the serials crisis" affect every function and unit. Librarians recognize that the issues extend beyond journal prices and that authors also are integral to the structure and function of the publishing enterprise.

As the stage where knowledge finds a foothold, understanding is demonstrated by articulation of the scope and underlying causes of the problematic aspects of scholarly communication, greater analysis and comprehension, the initiation of forums on campuses, and the beginning of library programs. When understanding emerges, the infor-

mation propagated by librarians is grasped by faculty and administrators, who recognize the many factors that contribute to the function of scholarly communication and who begin to restate the issues in their own terms.

Ownership

During the ownership stage, scholars, administrators, and librarians increase in their engagement with the issues. The results of librarians' efforts to foster awareness and understanding start to bear fruit. Scholars speak on behalf of solving the problem, and are personally and acutely cognizant of how the system functions in their discipline and across the wider scope of scholarship. They acknowledge that the problem is not solely the libraries and that all the participants have a role in what is happening in scholarly communication. Academic administrators lead discussions of issues and provide support for activities directed toward achieving change. Librarians realize that they are contributors to the workings of the system and start advocating for change at their institutions.

Ownership is marked by the recognition and acceptance that the players in scholarly communication all share responsibility and a stake in a healthy system. With ownership comes motivation and the resulting power to make a difference. This is the stage where librarians make a large-scale programmatic commitment to addressing issues of scholarly communication within their institutions and their professional organizations. Recognizing the acute need for a coordinated effort, the ARL established the Office of Scientific and Academic Publishing in 1990; the name was changed in 1995 to the Office of Scholarly Communication.¹ In 1998, ARL founded the Scholarly Publishing and Academic Resource Coalition (SPARC).² Both of these organizations have played a substantial role in supporting and leading change.

When faculty achieve ownership, they have a "eureka" moment, realizing that their scholarly and personal practices connect directly to the problems manifested in high prices, the cancellation of journals, loss of access to important research, and the decrease in library acquisition of other scholarly resources. Enlightened self-interest takes hold and they become motivated to do something to ameliorate the problem. Academic administrators are also in step with librarians in the call for change. Evidence for congruence of thinking occurred in March of 2000, when a group of academic administrators and librarians came together in Tempe, Arizona, at a conference sponsored by the Association of American Universities, the ARL, and the Merrill Advanced Studies Center of the University of Kansas. This group formulated "Principles for Emerging Systems for Scholarly Publishing," which became known as the Tempe Principles.³

Ownership is evident when faculty members invite librarians to speak to them about scholarly communication, and they take a stand to refuse to support particular journals or publishers. Scholars agree to participate in meetings sponsored by libraries or library professional organizations, such as the ACRL SPARC forums held at the American Library Association (ALA) conferences. Supporting and encouraging the creation of scholarly communication committees, task forces, targeted programs, discussion groups, or interest groups within scholarly societies (and attendance of faculty members) are indications of ownership. In 2001, the American Anthropological Association (AAA) established a Librarians Advisory Group to advise the publications program. In 2002, the AAA created a Scholarly Communication Interest Group, and in 2003 the association selected Suzanne Calpestri, the John H. Rowe Librarian at the University of California, Berkeley, to chair the AnthroSource board. This working relationship may not be as close as it was. In 2006, the staff of the AAA and the AnthroSource Steering Committee, composed of librarians and anthropologists, differed on support of the Federal Research Public Access Act (FRPAA).⁴ The Libraries Division of the American Society for Engineering Education also maintains a Scholarly Communication Committee.⁵

Another encouraging signal of ownership is faculty hosting events without prompting from librarians. Applied Mathematics faculty and graduate students at the University of Washington (UW) held a discussion on scholarly communication on May 25, 2004. Martha Tucker, Math Library, and Carl Bergstrom, Biology Department, were invited to speak about the issues from their perspectives at this event, which led to the decision to create an applied math community in the UW Libraries' DSpace repository. By coincidence, one week later the UW Graduate Department of Neurobiology and Behavior held a forum about open access, with Hemai Parthasarathy, senior editor of the *Public Library of Science*, as the featured speaker. This discussion covered many facets of scholarly publishing, including copyright, whether the author should pay for publishing a paper, the costs of publishing, peer review, and the like.

Activism

In activism, ownership evolves into actions to make the system sustainable, to create new models, and to take responsibility for change. During this stage, activists successfully recruit external allies to take action and librarians collaborate to employ common and coordinated strategies. Collaborative action is demonstrated by the formation of dedicated advocacy groups, such as the Open Access Working Group and the Alliance for Taxpayer Access.⁶ As activists, librarians use their collective power to share information about vendor and publisher contracts and

offers, negotiate for terms that meet library values, and work to relax restrictive agreements.⁷ Publishers join libraries to reconceive their services in response to input from the scholarly community regarding pricing, copyright, and access. An example of a cooperative venture is the partnership of SPARC, the Greater Western Library Alliance (GWLA), and scholarly societies with Allen Press to create BioOne, a collection of journals in nonhuman biology.⁸

Scholars and administrators invest in and are committed to achieving a positive change in their own culture and practices. In recognition of the strategic significance of a healthy scholarly communication system, the institution dedicates substantial resources, time, and attention to internal initiatives and analyses. Support is given for library actions that directly challenge publishing practices that lead to high prices and inhibit wide access to scholarship. One such mark is when faculty senates, councils, and committees take actions that show solidarity with librarians in rejecting pricing models and licensing terms that are undesirable. In 2003 and 2004, with the support of their faculty governance organizations, several libraries declined to continue their package subscriptions (often called Big Deal or bundled subscription packages) to Elsevier's *Science Direct* or other high priced packages of journals. Among these libraries are those at Cornell University, North Carolina State University, and Indiana University.⁹

Rewards, recognition, and incentives for faculty contributions to change are provided by the institution. Experiments with digital formats enter the mainstream and are made widely available through the Internet. With the growth of new media and experimentation in digital technologies, policies and reward structures begin to reflect new thinking and perspectives on what comprises quality scholarship. The report of a 2003 summit held by the Committee for Institutional Cooperation (CIC) indicates that the CIC institutions have widened their definitions of scholarship and are accepting for promotion and tenure the scholarship created and disseminated by digital technologies.¹⁰

At this stage, academic administrators provide new funding and resources to foster new forms of scholarship, and are willing to create institution-wide initiatives that put substantial effort toward solving the problems of the present system. An example can be an institution-level committee. Several of these composed both of librarians and faculty members have existed: the University of Tennessee Scholarly Communications Committee, the Indiana University Committee on Scholarly Communication, the University of Arizona Senate Committee on Intellectual Property and Scholarly Communication (no longer active), and the Cornell University Scholarly Communications Council.¹¹

As ownership grows into activism, more people across an institution are willing to lend their time and professional reputations to the cause. They lobby for changes to

guidelines, policies, bylaws, and practices at the institutional or organizational level. Scholars employ their particular expertise to examine and write articles about the problems of scholarly communication. Many scholars and librarians write letters and sign initiatives and declarations in support of new models, such as the Budapest Open Access Initiative, which began in 2001.¹² Further, librarians, faculty, administrators, and lobbyists work together to influence or formulate legislation or other high-impact actions that will create and instill new models at a regional or national level. ACRL, ARL, and SPARC have been effective in garnering support for legislation encouraging or mandating that results from federally funded research be made publicly available, such as the National Institutes of Health Public Access Policy.¹³

Activism is evident when faculty members research the causes and effects of the problems of scholarly communication in their field and widely share their results with colleagues, as Barschall did in the 1980s.¹⁴ Scholars who have tackled the issues of scholarly communication include Peter Suber, who founded the *Free Online Scholarship Newsletter* (now the *SPARC Open Access Newsletter*); Theodore Bergstrom and Carl Bergstrom, authors of tools and studies; and Mark McCabe, who has written from the perspective of an economist.¹⁵

Scholars follow through on their declarations and signatures of support by altering their long-standing publishing, reviewing, and editing practices, and they advocate for others to follow suit. Authors take steps to retain copyright to their work and, in addition, they begin to deposit copies in a subject-based or institutional digital repository. The advent of digital repositories dates back to the 1990s with the beginnings of the subject-based preprint services developed by scholars. Paul Ginsparg launched ArXiv, the physics preprint server, in 1991.¹⁶ Libraries and their partners later began earnest work in this area, developing and sharing repository software such as DSpace (MIT) and Fedora (Cornell University).¹⁷ On the publishing front, editorial boards and societies persuade their publishers to reduce the price of their journals and maintain control over future pricing. In 2000, the American Association of Physical Anthropologists negotiated with Wiley for a substantial decrease in price for their journal, the *American Journal of Physical Anthropology*.¹⁸ Editorial boards may even leave their publishers over disagreements regarding pricing or publishing policies and start new journals. The board of *Machine Learning* resigned and started the *Journal of Machine Learning Research* in 2000.¹⁹ Foundations and funding agencies that desire to be part of the solution also contribute to activism by supporting research and projects. The Andrew W. Mellon Foundation has a long-standing interest in scholarly communication and has been instrumental in documenting the issues, promoting experimental models, and fostering new kinds of scholarship. An early

examination and analysis of the issues, conducted with ARL, led to the publication in 1992 of the landmark work, *University Libraries and Scholarly Communication: A Study Prepared for The Andrew W. Mellon Foundation*.²⁰ The Mellon Foundation has provided funding to incubate new models and support systems for scholarly communication such as the DSpace Federation and the development of DPubS, an open-source software-publishing system being developed by Cornell University Library and the Penn State University Libraries and Press with a coalition of partner libraries.²¹ Local programs can advance their agendas by seeking support from those in the funding community that have demonstrated commitment to creating change.

Transformation

Transformation requires profound, systemic, and far-reaching change. The ultimate goal of any library program should be to advance and sustain the transformation of the library community as well as the local institution, scholarship, and the publishing industry to benefit a global community of stakeholders. Local programs at the transformation stage are well-engaged with rapidly evolving scholarship, but at some point after achieving their original purpose they may disband, merge into a larger effort, or assume a new role. At this writing it is unlikely that many, if any, local programs are solidly at stage four, let alone stage five. Transformation cannot be achieved by a solitary library or single approach; it demands collaboration, matured and advanced by earlier stages, by many stakeholders to achieve a shared vision. The collaborative pursuit of transformative change is still evolving.

For scholarly communication, this final stage is a shift in culture, a new state of being, and, at this point in time, an idealized conceptual model. With scholarly communication in a state of transition, predicting the course and outcome of transformation is difficult. Although its exact form is hard to foresee, transformed scholarly communication likely will be characterized by experimentation and multiple, diverse approaches. In a transformed state, new models will emerge and flourish. New practices of scholarship promote further innovation, provide rewards and incentives, and are affordable, sustainable, and available to a global scholarly readership. Global access to scholarship may be perceived as a common good for all people. Partnerships connect communities of scholars, librarians, administrators, and publishers in creating, accessing, understanding, and preserving new kinds of scholarship. Enabled by digital technologies, methods and modes of dissemination meet the needs of disciplines and fields and offer dynamic new ways of engaging with the results of scholarly activities. Librarians have gained additional roles in supporting the life cycle of scholarship, and resources are reallocated in response. Respectful

and productive dialogue occurs between librarians, authors, societies, and publishers as they work together on advancing a healthy system. Given the dynamic nature of scholarship and the rapid advance of technology, transformation may be a process that continues well into the future.

At this stage, the library itself will be transforming as it is integrated into new kinds of scholarly activities by reconceiving its services. Some indicators worth noting demonstrate transformation is occurring. Using digital library development as a catalyst and host for new models of the creation and dissemination of scholarship signals a profound shift in library services. Many libraries have changed the direction of their digital library programs from digital reformatting of special collections materials to promoting change in scholarly communication with projects such as digital repositories and electronic publishing. Institutional repositories with regular contributors and growing content are a sign of change. Early implementers of digital repositories included Massachusetts Institute of Technology, the University of Rochester, and the California Institute of Technology, and the number of repositories has been growing rapidly. With repositories and refocused digital services in place, librarians are able to engage with scholars in imagining, creating, describing, disseminating, and preserving new knowledge. The California Digital Library eScholarship program is one of the more robust and ambitious programs in the United States that promotes and supports new forms of scholarship and knowledge from creation all the way through peer review, management, dissemination, and preservation.²² Examples of libraries embracing electronic scholarly publishing include Highwire Press at Stanford University, Project EPIC at Columbia University Library, the Scholarly Publishing Office at the University of Michigan Library, and Project Euclid at the Cornell University Library.²³

Librarians also quickly identify the emergence of important initiatives and offer their resources and talents to support their development by forging partnerships with their local university presses. In March 2005, the University of Utah Press became part of the J. Willard Marriott Library. At the Penn State University, the libraries and the university press are collaborating to form new models for disseminating scholarship and, in December 2006, the press joined the libraries.²⁴ Also in 2006, Syracuse University Press came under the direction of the University Librarian and Dean of Libraries. The university press has been a component of the library at Purdue University for some time.

New models and publications that are created and led by scholars, along with open access becoming a mainstream movement, indicate a commitment to change beyond activism. The ArXiv physics preprint service mentioned earlier, was launched at the Los Alamos Laboratory. It was supported by the Laboratory's library until its founder moved to Cornell University in 2001 and the library there took on

responsibility for its maintenance.²⁵ Among the scholar-led publications is the Public Library of Science.²⁶ Many of the publications listed in the Directory of Open Access Journals were created by faculty.²⁷ Faculty members at the University of California at Berkeley founded the Berkeley Electronic Press (bepress) to provide a platform for publishing new electronic journals.²⁸ Transformation is also demonstrated when new institutionally owned journals or societal publications that provide lower prices and wider access are successfully established. SPARC maintains a list of these journals and of initiatives with which they have partnered.²⁹ Scholars mount challenges to restrictive ideas of intellectual property, such as the Creative Commons, offering a glimpse into a new way of publishing scholarship.³⁰ When transformation occurs, inspired and innovative forms of research and learning represent new standards for respected scholarship.³¹

One vision of transformation comes from Unsworth and Yu, who propose the following description of what scholarly communication should look like in the year 2010: “In a better world, high-quality, peer-reviewed information would be freely available soon after its creation; it would be digital by default, but optionally available in print for a price; it would be easy to find, and it would be available long after its creation, at a stable address, in a stable form.”³² While this description may not sound like a radical overturning of the current model, it is a worthy aspiration and a view that is at the leading edge of transformation.

In another provocative article, “Rethinking Scholarly Communication: Building the System that Scholars Deserve,” Van de Sompel et al. dissect and distill the process of scholarly communication into the activities of registration, certification, awareness, archiving, and rewarding. This article suggests “a revised perspective on what constitutes a unit of communication in a future scholarly communication system.”³³ The authors propose that:

- The system should consider datasets, simulations, software, and dynamic knowledge representations as units of communication in their own right.
- The system should accommodate complex documents that flexibly aggregate the products of the scholarly endeavor, regardless of their format or location. These compound objects must themselves be considered units of communication and therefore be recursively available for inclusion into other compound units. Such technology would provide for the reuse and derivation of existing results that is an integral part of the scholarly process.
- “The system must facilitate the early *registration* (and ultimately *preservation*) of all units in the system, regardless of their nature or stage of development. This would facilitate collaborative network-based endeavors and increase the speed of discovery.

Preprints, raw datasets, prototype simulations, and the like should be afforded the ability to proceed through the scholarly value chain in the same manner that only journal publications are afforded in the current system.”³⁴

The concept described above leaps beyond traditional publishing and envisions the capture and nurturing of a far larger scope of scholarly activities.

As said before, transformation may be considered an ideal. In the case of scholarly communication, transformation could equate with access by the public to the products and outcomes of scholarship being treated as a common good—shared and beneficial to all—and a strategic value of a democratic society. In this scenario, ownership of knowledge would not be confined to the few, but shared by many. Perhaps each discipline will have defined and optimized its practices in networked, collaborative, and digital space. At the very least, a critical mass of change should have occurred, giving birth to a new system that brings innovative and tangible benefits to the entire group of stakeholders in scholarly communication.

One might ask whether all five stages must be experienced in sequence by any program. The answer is probably no—change is rarely simple or entirely unilateral or unidirectional. Most likely, multiple stages are experienced simultaneously and this will vary by institution and disciplines. Still, the application of the concept of stages helps gauge the progress of a formal program and provides useful reference points and language.

Strategies for Success

How can libraries help bring about change? Many fruitful strategies can be employed to move from awareness to transformation. A library must create a cohesive program, develop a unified vision, foster ongoing and productive conversations, forge new relationships, and maintain momentum. In 2003, the Scholarly Communication Committee of ACRL endorsed strategies for system reform, including creating competitive journals, challenging the merger of publishing houses, supporting open-access journals, advocating for federal legislation, developing institutional repositories, ensuring preservation, and the like.³⁵ This paper identifies a different set of strategies that amplifies and complements those outlined by the ACRL committee.

Institutional scholarly communication programs likely will move through these stages at different rates. Strategies should be used within the context of the institutional situation, recognizing the resources available and the importance given to achieving change in scholarly communication. The strategies proposed here can be applied at almost any of

the stages, depending on whether a program exists, how advanced or mature the program is, the likely reception on campus, and the nature of the established goals. A scholarly communication program should employ strategies that make sense locally; however, it should encompass the elements of leadership (individual and organizational); communication, outreach, education, and advocacy; research; coalition building; resource allocation; and assessment.

Strategies for Leadership

A key initial step is for a person who has resources and authority to assume leadership, responsibility, and coordination for the program. Relying on a lone voice to speak and act for the library is not enough; a program has to recruit many people to speak eloquently and take direct action on the issues. A committee may be charged to oversee the program and carry out specific tasks. Examples of library committee charges include the North Carolina State University Scholarly Communication Subcommittee of the University Library Committee, now discharged, and the University of Washington Scholarly Communications Steering Committee.³⁶ If so, this group should research and analyze the local situation; gather data; develop appropriate strategies, goals, policies, and an action agenda; set timelines; and determine outcomes that will lead to change. The designated leader and the committee together can develop the program in ways that motivate and engage others. One way to grow leadership capabilities is to attend the ACRL/ARL Scholarly Communications Institute, which is designed to foster a team leadership approach to developing a new program or enhancing an existing one.³⁷ It provides the training and tools to craft a campus-specific plan.

Strategies for the Program

An important piece of a program is a plan for communication, outreach, education, and advocacy. The scholarly communication committee may have this responsibility. Methods might include creating a Web site, developing talking points that include local and national data for librarians to share with their faculty counterparts, and planning campus forums and conversations. People who are passionate about scholarly communication and well-versed in the issues and trends may forget that not all librarians are as informed and ready to speak persuasively on the issues when opportunities arise. Librarians need to be prepared with information and tools to contribute effectively to advancing the program. An educational strategy should be at the heart of any program. A good tool to employ for education was developed by the ACRL Scholarly Communication Committee to reach librarians, authors, and administrators.³⁸ ARL has created guides for holding "Brown Bag Lunches" for engaging

staff.³⁹ A local committee should also monitor local, national, and international developments within the broad area of scholarly communication, and share this information with others. The SPARC Web site is a useful source of current information.⁴⁰ The committee should identify the faculty at its institution who hold editorial positions, and seek out the scholars who have already embraced ownership or activism to help influence the opinions and actions of these editors.

Gaining the attention of the faculty and administrators and engaging them in productive discussion and partnership will be a challenge. A program has to balance carefully the amount of information delivered. If faculty and administrators are given too much information, they may ignore the message; given too little, they may not listen. Librarians must be prepared to deliver the right information at the right time. Faculty in library advisory groups and the academic senate may be receptive to assisting in the crafting and delivery of a persuasive message.

Distributing information in widely disseminated campus publications can be a powerful part of a communication plan. The committee could be employed to write a regular column or newsletter for local distribution and to get information into other campus publications. Articles should be to the point, stripped of jargon, and written with the perspective of the audience in mind. An even more influential approach would be to have faculty activists write and share their ideas, motivations, and experiences in regard to changing scholarly communication. To keep messages current, librarians should distill news items and send them to faculty and administrators with regularity. Many library newsletters publish articles on scholarly communication to raise awareness of their programs and concerns. The Hardin Library for the Health Sciences at the University of Iowa publishes a newsletter devoted to scholarly communication.⁴¹

Creating partnerships and building coalitions are essential elements of success. If a program involves scholars and administrators in meaningful ways, they will be more likely to continue as allies and partners in change. The committee can prepare librarians and faculty to present briefings at faculty department meetings, orientation sessions, and governance groups. If the library has an advisory council composed of faculty, this council can be enlisted to act and speak on behalf of change. Workshops dedicated to getting published are another opportunity for talking about the health of scholarly publishing and the impact of decisions authors can make on publishing. Like librarians, faculty advocates will need information and tools to advance the goals of the program.

Other effective strategies with faculty include discovering their concerns, interests, and the motivations that will encourage them to support transformation. A library program may serve as a catalyst for faculty partnerships and lead to experiments and alternatives to traditional scholarly communication venues. These include creating subject

repositories, supporting online working or technical papers series, managing electronic theses and dissertations, conducting joint digitization projects, preserving course Web site content, and archiving data. The library also could publish or serve as an archive for a faculty member's journal.

Library policies, guidelines, decisions, and practices are integral to the performance of the present system of scholarly communication. As the ACRL Scholarly Communication Committee pointed out in their list of strategies, a program should employ the power present in collaborative libraries groups (for example, organizations, consortia, societies, or associations). The scholarly communication program should be active in determining the direction, policy, and goal setting of these groups. Consortia can be used to stand firm when seeking terms that advance the cause of open information and open scholarship. Adhering to shared and strong principles in the negotiation and acquisition of published material is critical—progress cannot be made if librarians give away their rights and agree to restrictive terms that limit the ability to share information and work in collaboration. One of the greatest powers librarians have is the ability and motivation to share information. Maintaining an open flow of information is crucial; collective knowledge combined with collective action is very powerful.

Another strategy is to allocate resources to support change initiatives, in whatever form they may take. The funding may come initially from internal reallocation, but soliciting and securing funding from the institution or an external funding organization is crucial to establishing new services and implementing fresh approaches. Effecting change and putting in place the underlying structures required to respond to new models is an investment in the future. The scholarly communication committee could be asked to make recommendations or decisions about the allocation of resources to support initiatives and actions directed toward effecting change.

Another important partner in change is the publisher. In conversations about scholarly communication among librarians, the publisher is often assigned the role of the adversary, which is unfair to the many publishers that have worked with scholars and librarians to experiment and explore new territory. Societies and associations that maintain their own publishing programs have not followed equal paths, and commercial publishers are not all alike. The university press is a potential ally and supporter. Someone from the library might serve on the press board (or conversely, someone from the press could serve on library committees or advisory groups), and partnerships could blossom through pursuing joint publishing ventures. University presses are seeking their place in the digital world and may be eager to try different means of achieving their goals.

A new perspective on the library's role in scholarly communication must be embedded in library programs,

and funding models. The development of digital libraries presents an enormous opportunity to provide programmatic direction and resources toward change. Many scholars are pursuing scholarship that is digital in nature and that does not lend itself to the traditional paths of dissemination. Librarians should assist with the development of this new scholarship and link it to their scholarly communication programs. Digital scholarship is thriving at the California Digital Library's eScholarship program and the Institute for Advanced Technology in the Humanities (IATH) at the University of Virginia.⁴² The Cornell University Library offers to its faculty the Digital Consulting and Production Services (DCAPS).⁴³ A number of commercial and open-source products have evolved that help manage the creation, dissemination, and curation of scholarship from formal publication to digital repository management. These include e-prints, DSpace, Fedora, CONTENTdm, bepress, and Digital Commons. Literature describing digital scholarship and presenting interesting support models is relatively recent but growing. Publications on digital scholarship include Andersen's *Digital Scholarship in the Tenure, Promotion, and Review Process*, Ogburn's "Digital Scholarship," Unsworth's "The Crisis in Scholarly Publishing in the Humanities," and Smith's *New Model Scholarship: How Will It Survive?*⁴⁴ The UW maintains a Web site devoted to digital scholarship.⁴⁵

Essential to success is having the faculty members who create scholarly materials pursue and lead initiatives; substantial and sustainable change will not occur without the whole-hearted endorsement and leadership of the authors themselves. A program should aim to bring fundamental and widespread change to fruition, perhaps led by an institutional, campuswide committee reporting to the chief academic or administrative officer, or to the faculty governance organization. Libraries should solicit authors and administrators to join national advocacy initiatives by writing to legislators or lending support to lobbying activities.

Conclusion

This paper has proposed that five stages—awareness, understanding, ownership, activism, and transformation—are associated with achieving change in scholarly communication and are characterized by increasing levels of understanding, commitment, and engagement. Attributes and markers of a successful program have been outlined and a number of strategies have been recommended for libraries to implement and sustain a scholarly communication program. The pursuit to redefine and radically change the conduct and dissemination of scholarship will be difficult. For library programs, maintaining optimism, courage, and momentum are important, as are winning and keeping allies.

Programs may begin with local focus and strategies, but ultimately they must attain a wider sphere of influence; transformation will be achieved only through building effective collaborations and coalitions. The best possible outcome to scholarly communication programs would be one in which all stakeholders can share and strive for the same vision. All parties have contributed to the present state of scholarly communication. Ideally, success in achieving a new vision will come about through multifaceted approaches, productive and respectful conversations, cooperation, and good faith among all interested parties. Achieving this kind of working relationship should be a primary goal of the library, publishing, and scholarly communities.

Transformation is attainable, but still far off. As Lao Tzu is purported to have said, “a journey of a thousand miles begins with a single step.” Librarians are the “canary in the coal mine,” forecasting the danger of leaving current practices unchallenged, and highly motivated to conduct programs designed to create fundamental and lasting change.⁴⁶ It would be wise to heed the writings of John Kotter, noted author on leadership in business, who emphasizes that transformations fail when organizations do not persevere in seeing the process through to conclusion.⁴⁷ Libraries are advocating transformation—the time has come for them to assess their progress and strengthen their strategies toward achieving new and sustainable practices, systems, and models of scholarly communication.

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Notes on Operations

Improving the Flow of Materials in a Cataloging Department:

Using ADDIE for a Project in the Ohio State University Libraries

By Melanie McGurr

The Cataloging Department at the Ohio State University Library continuously reviews workflow to see which areas need improvement. In 2004, the Cataloging Department began receiving complaints about the time it took to locate unprocessed materials within Technical Services. Locating these materials was difficult and time consuming, causing problems for both patrons and staff. The author reports on a project that examined the workflow of unprocessed materials in the Cataloging Department at Ohio State. Using the instructional design ADDIE model, a new workflow was designed and implemented to ensure that items could be located, processed, and delivered to patrons in a timely manner. The paper concludes with suggestions applicable to other libraries.

Introduction

Maintaining a flexible and effective workflow for cataloging new materials and handling problem materials that come back for recataloging or record maintenance is an ongoing challenge, especially at a large university. One of the most difficult challenges is ensuring patron access to the books being processed in a cataloging unit. The catalyst for this investigation was an increasing number of comments from patrons and staff about the time required to locate unprocessed items in the Technical Services unit. Because both order and in-process records are available to patrons and staff via the online catalog, items can be requested as soon as they are received by the Acquisitions Department. If an unprocessed item was requested from Technical Services, it could take hours, if not days, to locate the item. Because this wasted the time and effort of both patrons and staff, the Cataloging Department decided to investigate the workflow of unprocessed materials to identify problem areas and to propose solutions to allow Technical

Services staff to locate, process, and deliver items to patrons in a timely manner. This paper reports the findings and results of that initiative.

Background

Cataloging for the Ohio State University Libraries (OSUL) is done in many departments, including the Monographs Department (MOD), Scholarly Resources and Integration (SRI), Cataloging (CAT), Serials and Electronic Resources (S/ER), and Special Collections Cataloging. MOD completes simple copy cataloging and most PromptCat record processing. All copy cataloging or PromptCat materials in a foreign language are forwarded to CAT, as is any cataloging copy that lacks a call number or subject headings, needs series work, or has uniform title problems. If MOD cannot complete receipts within two weeks from receipt, overflow is sent to CAT. Foreign-language materials from SRI are forwarded to CAT. CAT is also responsible for original cataloging for books in all languages, copy cataloging of books in foreign languages, much

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of the cataloging for regional campuses, and audio-visual cataloging. Items also come to the department from individuals: collection managers, preservation specialists, donors, public service professionals, and circulation personnel. Because thousands of items come through this department from many different directions, effective organization and workflow are imperative.

This project had two main objectives: identify how to make unprocessed materials in CAT easily accessible for patrons, and facilitate control of unprocessed materials within one location.

Because of the department-wide implications for the project, a careful plan was needed. Changing small parts of the workflow here and there to test theories would mean constant changes for the department. A plan that factored time for design and testing was needed to minimize unnecessary interruptions in daily workflow. The experiences of the author, including time spent as an instructional designer and years as a college instructor, factored into the decision to use the ADDIE model. ADDIE stands for analysis, design, development, implementation, and evaluation, and is the process traditionally used in instructional design. In the ADDIE model, each step has an outcome that feeds into the subsequent step, resulting in a dynamic, flexible process.

Variations of this model are used throughout the e-learning industry and in instructional design projects in educational settings, including libraries. According to Molenda, no official definition for the model exists.¹ Unlike popular reorganization plans, such as Six Sigma (developed by Motorola as a process improvement technique), the ADDIE model is not copyrighted or trademarked; therefore it is an inexpensive and flexible model to use and adapt.

Literature Review

Many authors have written about reorganizing cataloging workflow, but few have dealt with specific details of problem-solving or backlogs of books. Many articles on workflow in academic libraries evaluate the flow of materials between acquisitions, copy cataloging, and original cataloging units. Ohio State recently moved the copy cataloging functions from the Cataloging Department to the Acquisitions Department.² According to Freeborn and Mugridge, this switch in copy cataloging duties has gained popularity since the early 1990s, and they cite Ohio State as a successful example.³ A similar project is explained by Branton and Englert from the University of Southern Mississippi.⁴ Studies of using OCLC services and products, such as PromptCAT, to speed up the acquisitions and copy cataloging processes are discussed in articles by Coats and Kiegel at the University of Washington Libraries and Maurer and Hurst at Kent State University.⁵ Coats and Kiegel also discuss using Microsoft Access to run queries on books in the cataloging department to organize PromptCat records.⁶

The major evaluation and reorganization of cataloging and workflow at specific colleges and universities have produced useful articles. Condrón describes a project at Tufts University's main library that changed the way the Cataloging Department handles workflow from top to bottom, but that also met with much opposition and uncertainty from the professionals and staff.⁷ Everyone in the department was affected by the changes, which included cross-training and position changes. Condrón's emphasis on the challenges of change, the importance of communication, and the use of focus groups and team meetings to facilitate change are valuable.

Although some library literature addresses the eradication of backlogs, articles including information on prob-

lem book backlogs are not plentiful. A few articles on eradicating backlogs are pertinent to the situation at Ohio State. Chao and King of Brigham Young University explain how they are handling a backlog in their Chinese, Japanese, and Korean collection by ensuring that all items are available for patron access through creation of a brief bibliographic record with a local call number in the catalog.⁸ Patrons can then locate and check out items, which are given a full record when they are returned to the library. Books are also cataloged on demand if they are requested by patrons. Kresge discusses the change in workflow at Bowdoin College, which had a similar problem to Ohio State's.⁹ Bowdoin, like Ohio State, had difficulties with multiple people handling one item, a small backlog, and an unacceptable lag in cataloging new receipts.

Articles dealing with process improvement in libraries were also consulted because of an interest in careful analysis and design before disrupting every day workflow. Six Sigma, an extremely popular process-improvement model in the business world, was used at the Newcastle University Library to improve their self-service.¹⁰ Two projects at Notre Dame University were of interest.¹¹ The Electronic Reserves unit used process improvement to improve workflow functionality and the Serials unit used process improvement to construct a new workflow as they migrated from one system to another. Nozero and Vaughan's article about managing change at the University of Nevada, Las Vegas, was especially helpful in its discussion of reorganization versus process improvement.¹² They describe reengineering as a radical top-down approach to a major change or crisis, while process improvement is a gradual change brought about by a team-led initiative and could involve people at all levels of the academic library hierarchy.

Little scholarly information exists

on the use of the ADDIE model in libraries. Swanson's article details how Moraine Valley Community College used ADDIE to assist the library staff with keeping up with the curriculum at the school.¹³ Ohio State's problem was important, but certainly not a crisis, so reorganization was not seen as necessary. Process improvement was a more attractive avenue. Process improvement was needed for the workflow, but the model needed to be scaled down. Because of the experiences of the person assigned to the project (the author), the ADDIE model was used.

Data Collection

Data needed to be collected to measure the extent of the problem and inform the analysis phase. To achieve the two objectives of this study (easy access for patrons and improved control of unprocessed materials), a sample was collected from unprocessed materials in CAT. This sample was taken within one month—March 2004—in CAT and focused on western language materials. Unprocessed materials housed in all workstations within the department were inventoried. The items sampled were from the regular workflow (no gift collections or retrospective projects). The books could be new, unprocessed books, or books sent to CAT for correction. The cataloging department received 942 items that were inventoried for barcodes, bibliographic records, and location codes. Information concerning the items was gathered on paper first because the items were spread throughout the department, and then transferred to an Excel spreadsheet. This information included status code, the presence of a barcode, and the presence of a bibliographic and item record. Because one objective was improved ability to find items, the status code of these items was a critical piece of information. Table 1 shows the different status codes possible for

the books in the department. The status code is located in the item record and appears as a message to patrons in the online catalog. Staff often change status codes to show that an item is missing, being transferred, withdrawn, and so on.

Fixing problems and processing items during the inventory was too disruptive. Instead, a note was added to the item records with the correct status (at Technical Services), stating that the items were in CAT, the initials of the staff person inventorying the item, and the date. Those items with the wrong status were corrected and the note, initials, and date added to the item record. The books not in the catalog at all were given high priority.

Findings and Analysis

After the data were collected, the next step was *analysis*. Table 2 presents totals for types of problems found in the initial inventory. An item could have more than one problem (for example, a book that does not have a barcode but is in the catalog could also be listed as missing). A total of 989 problems were identified in 942 items. The inventory showed that most items in the sample were listed as available for checkout even though the item remained in CAT (table 2). Incorrect status codes were causing serious problems. The disturbing fact was that these codes were found on items in the department that were not readily available for patron access. Of the items inventoried, 397 items were coded as available: in other words, as being on the shelf and ready for patrons to check out. Of these items, 225 items were not in the catalog at all, which meant they did not exist for patrons. The 308 items without barcodes could be easily fixed, but through a time-consuming process. The 49 bibliographic records without item records were also problematic because a bibliographic record with no

Table 1. Possible status codes

Code	Explanation
)	OhioLINK requested
d	Ask at desk
H	Use in library
J	Not available
k	Being transferred
m	Temporarily missing in order to create search file
p	In process
s	Missing
w	Withdrawn
a	At Technical Services
-	Available

item record is confusing for patrons. A bibliographic record with no item record attached shows patrons information about an item, but does not display location or availability. Item records at OSUL contain not only information on location and availability, but also contain the codes for rules of circulation (for example, if the item cannot leave the library or can only circulate as a reserve item) and other codes that help patrons and circulation understand how the item is to be handled.

M (missing) status code problems were extremely serious because almost all of these instances meant that patrons and staff were not able to locate an item and staff had changed the status code to missing. This could mean another copy was ordered or patrons went without an item that was actually waiting for processing in CAT. Only 113 of 942 items (12 percent) were labeled correctly as being in Technical Services.

The main problem was that books were coming to the department by many channels. The status of the items was not being consistently changed by the department sending the items to CAT or by anyone in CAT. The public displays for a large number of books

Table 2. Types of problems identified in the March 2004 inventory*(sample = 942 items: 113 correct, 989 problems)*

Status Codes	No. of Problems	% of Total Problems
Listed as available for checkout	397	40.1
M (missing)	10	1.0
No barcode	308	31.1
Not in catalog	225	22.8
No item record	49	5.0
Purchase being considered	0	0
Total	989	100

Note: Some items had more than one problem.

(397 in this sample) that arrived at CAT continued to indicate that they were available. This status was not changed when the books arrived in CAT. An item may wait for attention in Technical Services for a while, depending on the complexity of the problem and the workload of the department. Because so many people send items to Cataloging, they could not be depended on to remember to change the status of items and the solution needed to be found within Cataloging. The entire process needed to be centralized and effectively organized.

Design and Development

The *design* and *development* phase of the ADDIE model began at this stage, following analysis. The proposed solution was twofold: a new staff member was hired to be responsible for ensuring the items displayed as being at Technical Services, and all items needed to be prioritized. A new workflow was designed in which a staff member was placed in charge of receiving materials that arrive at the department. Any item coming into the department would go through this single person to ensure that it would be checked out to Technical Services, dated, and initialed. New “unpro-

cessed” location codes were created to show that items were in Technical Services awaiting processing so they could be sent to a specific location. For example, a book targeted for the Main Library would have a location code assigned to unprocessed books intended for Main Library. If an item did not already have an OCLC record from the time of order, then a record would be brought in from OCLC or a brief record created so that patrons could see information about an item and where it was located even before it was processed.

These details in the record indicate when the book arrived, and where it would go in the Technical Services Department. The new staff person also would be the contact person for locations and patrons trying to locate a particular item or items. The new location codes and dates help the staff person to track down where the book should be located in the Department. Although this requires an extra person handling each item, it also means that this staff person can facilitate a patron’s ability to locate the item by updating the item record to keep the location current. It also means that the new staff person would be keeping statistics on the books coming into the department. This staff person can also distribute new receipts to the appropriate staff for processing.

Secondly, the problem items needed to be prioritized. The decision was made to assign a high-priority item a colorful streamer. For example, a purple streamer would be placed in all books that are not in the catalog. Anyone looking at a large amount of items could quickly see which need to be addressed first. The date received also would be recorded on the streamer. A person trying to decide which item to process first can easily see that a high-priority item that came to the department a few months ago has precedence over a high-priority item that arrived yesterday.

Third, the system of assigning problematic items to specific individuals with expertise was not working. These items sometimes would sit on a book cart or on someone’s desk for a long time. So everyone in the department can see what needs to be done, the unit needed a “needs work” area where anyone who has the time can tackle high-priority items first, then work down the line. If a certain series of items are in need of special care, (for example, a large authority control problem), then they can be labeled to wait for the librarian who handles authority control. If an item is in a foreign language, then it will be labeled to wait for the person or persons who can catalog in that language.

Finally, statistics needed to be kept on every item that arrives in Cataloging. This can be a simple hash-mark system or an automated approach, such as an Access database. In the case of Ohio State, an Excel spreadsheet is used to keep track of what arrives at the Department, which particular cataloger it goes to, and how many items a specific person does a month. Another option for libraries is to enter information (such as the arrival date or the location code) into an Access database, and a query can be done at a later date to see if a certain book was (or group of books were) still in the department. For example, the staff person in charge of changing

the item records also can run queries every month to see which items sent to the department six months ago are still waiting for work. A new workflow was developed that encompassed all of these solutions.

Implementation

In the *implementation* (the *I* in ADDIE) phase, the recommendations for a new workflow were put in place. The implementation stage was longer than expected because funding for a new hire needed to be approved, as well as new location codes approved and created. A new staff member was hired and trained to implement the changes for the new workflow. Training was an extensive process because of the variety of duties expected of the new person, including tracking and distributing incoming new materials, gathering monthly statistics, and communicating with the numerous library locations on campus and regional campuses of Ohio State.

The new person needed to be familiar with OCLC's Connexion to search for and export records into OSUL's local integrated library system, Innovative Interfaces' Millennium. Training in Millennium was also important because this position required knowledge of editing records and status codes, and creating lists of Boolean searches. For example, the Architecture Library on campus might need to know what books destined for their library held the status of unprocessed before a collection manager ordered new books. A Boolean search for the status code "arcb" (architecture unprocessed) could be completed and shared. Because of the demands of this position, the staff person must be flexible, organized, and friendly. Hiring an approachable person was especially important since this member of CAT had more contact with patrons and other staff and faculty throughout the library, and, for many people, repre-

sented Technical Services as a whole to the rest of the University.

Evaluation

After two years of implementing and working with a new workflow, some problems were still arising, most notably the inability to find some items when they were requested from other departments at OSUL or by patrons. The final step in the ADDIE model is *evaluation*. In April 2006 (as part of the Evaluation phase), the department reevaluated the workflow to see if the recommendations were being followed and if the system was working smoothly. Although the criteria were the same for the second sample, this phase used a smaller data set to evaluate a typical day in the department. A sample of 250 books was randomly inventoried from all work areas. This inventory was done on a Saturday so as not to interrupt work with such a quick inventory. All items were evaluated for a bibliographic record. Items records were also checked to ensure that the proper status code was listed, the staff note was present, and a barcode was inserted. Books that adhered to the new system were identified, along with those books that did not include all the components, that is, bibliographic record, location code, staff note, and barcode, or had incorrect information. Again, the characteristics were recorded on paper and transferred to an Excel database.

Table 3 displays the results of the inventory. It showed that 152 books (60.8 percent) had been correctly handled, meaning they had a short or full bibliographic record, the correct status and location code, a staff note, and a barcode. This was a great improvement over the original inventory in which only 12 percent were correct; see table 4 for a comparison. Of the inventory, 112 books (44.8 percent) still had problems, mostly from having no item record, barcode, or record

in the catalog. A few books had been waiting for attention for so long that the original short bibliographic record assigned to them was deleted.

Problems involving incorrect location codes were minimal. No items were listed as available for checkout when they were not and no items were listed as missing. One interesting problem involved the items with order records stating that this purchase was being considered for the library. The purchase was approved, ordered, and processed, but was not reflected in the item record. A patron might not have known that these books were now available for request. During the inventory, all records were corrected to display the correct information to the patron.

The original objectives have been met for the most part, and requests for materials by staff or patrons are much less problematic now that unprocessed items are easy to locate. Some problems still exist, usually because items have become separated from the original workflow or were held back for special attention because they are complex in some way. These problems are minimal compared to the first sample and can be addressed quickly.

The number of items that are correctly reflected in the online catalog is encouraging. Now if a patron or staff member needs a certain item, locating the item is much easier because the catalog record shows where the item is and where it is destined to go after processing. Also, the original inventory prompted most people to create a special problem area in their workspace so where to place items for the attention of specific staff in the department was clear, thus decreasing the chances of an item becoming misplaced.

Implications for Other Libraries

Cataloging departments should be vigilant in initiating changes in workflow

Table 3. Types of problems identified in the April 2006 sample*(sample = 250 items: 152 correct, 112 problems)*

Status Codes	No. of Problems	% of Total Problems
Listed as available for checkout	0	0
M (missing)	0	0
No barcode	46	41.0
Not in catalog	15	13.4
No item record	27	24.1
Purchase being considered	24	21.4
Total	112	99.9

Notes: Some items had more than one problem. Percentage does not equal 100 because of rounding.

Table 4. Comparison of findings before and after process improvement

	March 2004		April 2006	
	No.	%	No.	%
Number in sample	942		250	
% with no errors	12.0		60.8	
No. of errors by type	<i>N</i> =989		<i>N</i> =112	
Listed as available for checkout	397	40.1	0.0	0.0
M (missing)	10	1.0	0.0	0.0
No barcode	308	31.1	46	41.0
Not in catalog	225	22.8	15	13.4
No item record	49	5.0	27	24.1
Purchase being considered	0.0	0.0	24	21.4

Notes: Some items had more than one error. Percentage in last column does not equal 100 percent because of rounding

that will increase the pace of processing items. Workflow issues should always be a top priority. A department should not wait until a crisis is at hand to make a change. The ADDIE model is one option for process improvement projects. Evaluating workflow and making adjustments, large and small, is a key factor in a successful department. The first step is to *analyze* the problem at hand. Is there a problem with incoming items? Are patrons or faculty complaining about slow cataloging or lost items? Take the time to investigate the crux of the problem before rushing in with possible solutions. The problem at Ohio State was straightforward, so that assisted in the goal for the new

workflow being clear cut.

After analysis, carefully *design* a new workflow. Do research to discover what other libraries have done and ask the people who do the work everyday what might assist them in solving the problem. The design phase is a chance to work things out on paper before implementing a new program, so do not rush this phase. This is also a good time to brainstorm new ideas for solving problems. For example, during this phase at Ohio State, the idea of a new staff position was discussed.

Development of a new workflow may not be easy, depending on the enormity of the project. This is the chance to put a design into action. Of

course, the design may not work. The project may become stalled at this stage, but going back to the design stage at this point is not failure. Going back one step may save many problems in the future. Libraries may chose to do a small sample at this point to see how the new workflow will work, and how disruptive it might be. For instance, a member of the department could begin working with the new workflow as a test during the development phase.

Implementation is the next step. Not all members of a department will be excited about a new workflow. In the case of Ohio State, the new staff member is responsible for the majority of new steps in the workflow, which helped make the change a success. Members of the department are still receiving materials and required to keep monthly statistics, but now the materials are distributed by the new staff person and the monthly statistics are also collected by the staff person.

The last step is *evaluation*. The choice of when to do an evaluation on the new workflow is dependent on the situation in a particular department. Ohio State's evaluation was conducted two years after the initial data were collected. This was due to a number of factors (including personnel issues), but the initial goal was to let the department have plenty of time to get used to the new workflow. A staff person had to be hired and trained, new location codes approved, the new workflow implemented, and any small problems solved.

Although Ohio State's evaluation is positive, libraries also must be prepared for a more complicated result. One of the most useful things about the ADDIE model is the ability to go back to former steps if needed. If the new workflow does not work, moving back to the design or development stage may help the process, or, if the initial problem is not fully investigated, going back to the analysis stage may be necessary.

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Notes on Operations

Using Comparative Online Journal Usage Studies to Assess the Big Deal

By Cecilia Botero, Steven Carrico, and Michele R. Tennant

This paper analyzes the comparative findings of two studies undertaken at the University of Florida Libraries comparing online journal usage statistics derived from COUNTER-compliant publishers. The analyses conducted in 2005 and 2006 were not intended to be rigorous scientific studies. Instead, the statistical assessments were intended as tools for determining trends in the costs and use of online journals at the University of Florida. The studies also explored the relationship between the large publisher online journal packages (the so-called Big Deals often licensed through consortia arrangements) and online journal usage, and the effects of Big Deal packages on library budgets.

Introduction

Libraries consistently seek meaningful methods through which they can assess the value of their collection and the remote resources to which they provide access. They want to know how well the collection is meeting users' needs, in addition to demonstrating accountability for the financial resources with which they are entrusted. One metric utilized for decades is use, yet use in the online environment has been difficult to measure. This is changing as information providers have begun to provide use data that complied with the COUNTER guidelines. COUNTER stands for Counting Online Usage of Networked Electronic Resources, and "is an international initiative to improve the reliability of online usage statistics."¹ This paper examines data provided by COUNTER-compliant publishers for e-content in the University of Florida Libraries to study trends in costs and use. While specific to the University of Florida, the approach described can be applied in other libraries.

The fiscal year at the University of Florida (UF) Libraries begins on July 1 and ends the following year on June 30. At the beginning of each

fiscal year a new materials budget is drafted by a group consisting of representatives and librarians from Library Director's Office and both the Collection Management and Acquisitions Departments. In July 2005, the materials budget for Fiscal Year (FY) 2005/2006 issued by this group coincided with the first meeting of a team of four librarians examining an aggregation of online journal usage statistics. With the new materials budget in hand, the four-member team (three librarians from the University of Florida Health Science Center Libraries and one from the University of Florida Smathers Libraries) noted that over half of the approximate \$8 million materials budget for the UF Libraries was devoted to acquiring electronic resources. Thus the team decided to converge the examination of online journal usage statistics with a summary of budgetary expenditures to devise a study of cost-effectiveness, that is, compare expenditures of online journal packages, concentrating on the larger publishers, with the usage statistics garnered from each package. Besides launching a study on the cost-effectiveness of online journals, the team set several smaller but important goals of the project. These objectives included assessing

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This paper draws on two poster presentations by Cecilia Botero, Michele Tennant, Lenny Rhine, and Steven Carrico: "Online Journal Usage Statistics for the University of Florida: What We Learned and What Surprised Us," poster presentation at the Medical Library Association Southern Chapter 2005 Annual Meeting, San Juan, Puerto Rico, and "Online Journal Usage Statistics for the University of Florida: What We Continue to Learn," poster presentation at the Medical Library Association 2006 Annual Meeting, Phoenix, Arizona.

or reconfirming patron preferences for various online journal packages, and investigating how the Big Deals (large online journal packages) were affecting materials expenditures and traditional library collection building.

Prevalence of Online Resources and Trends in the University of Florida Libraries

Online resources have become the primary mode of accessing and collecting information for most academic and health sciences library users, particularly in the fields of biomedicine and the sciences.² Consequently, as these libraries offer more electronic resources to better serve their patrons, usage patterns are changing dramatically. Readily available electronic resources have changed the approach and even the methodology users apply when conducting research. Libraries, attempting to keep up with the increasing desires for databases and online journals, are spending a growing percentage of their materials budgets on acquiring these electronic resources. According to Kyriellidou of the Association of Research Libraries (ARL), “with a median of more than \$5.5 million spent on serials in 2003/04 and an increasing portion of these expenditures devoted to electronic resources (30 percent of the library materials as of the latest count), libraries appear to be catering to their users’ never-ending lust for delivery of information to the desktop.”³

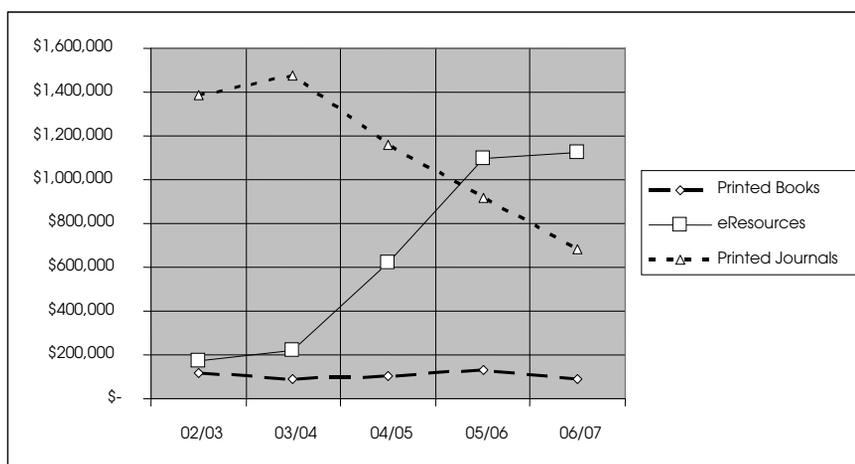
The trend of academic, health sciences, and medical libraries devoting more of their materials budgets to electronic resources is substantiated by a review of the materials budgets at the UF Libraries, specifically the budgets of the University of Florida’s Health Science Center Libraries (HSCL) and the University of Florida Smathers Libraries (Smathers). HSCL’s expenditures for print books, print serials, and electronic resources in each fiscal

year spanning four years, FY2002/2003 to FY2005/2006, are shown in figure 1, and the breakdown of the materials budgets in the same period for Smathers are shown in figure 2; expenditures for FY2006/2007 are shown as projected within both charts. Despite the disproportionate size of the two budgets, the charts show a similar pattern. During the four-year period FY2002/2003 through FY2005/2006, expenditures for print books and print serials remained constant as expenditures for electronic resources increased significantly. Electronic resources at HSCL are primarily online journals, as expenditures for electronic books and other electronic media are comparably low. In FY2005/2006, the HSCL spent approximately 51 percent of an annual \$2.1-million materials budget on the acquisitions of electronic resources, rising from 12 percent of the budget from three years earlier. In FY2005/2006, expenditures for print journals were approximately 43 percent of the budget, a drop from 81 percent in FY2002/2003. The same pattern is seen at Smathers. In FY2005/2006, approximately 50 percent of a \$7.4-million materials budget was spent on electronic resources, a rise from 21 percent of the FY2002/2003 budget. Simultaneously, the percentage

of the materials budget for print journals decreased from 53 percent to 33 percent between FY2002/2003 and FY2004/2005. Both charts show only a minor decline in monograph expenditures. The dramatic shift in expenditures is between the budgets for print journals and for electronic resources. Both libraries are spending more on online resources because library patrons consistently prefer using the electronic format to print.

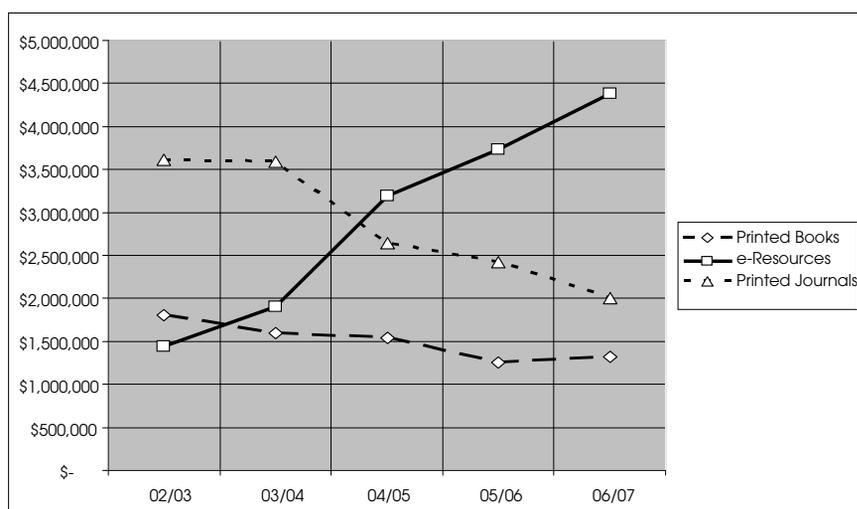
The three largest Big Deal packages (Elsevier, Wiley, and Springer/Kluwer) at the UF Libraries also are having a more than significant impact on the materials budgets. The UF Libraries spent \$2.6 million on these three packages in FY2005/2006, representing approximately 27 percent of the total materials budget, and 54 percent of the more than \$4.8 million spent on electronic resources (see table 1). Despite the hefty annual budgetary outlay for these types of packages, the libraries did not know if use justified the expenditures.

To answer the question, “Does use justify expenditures?” the team undertook a study to examine the cost-effectiveness of online journals, especially those received through the Big Deal packages, using vendor and publisher supplied usage statistics.



*Expenditures for FY2006/07 are projections.

Figure 1. HSCL material expenditures FY2002/2003 through FY2006/2007



*Expenditures for FY2006/07 are projections.

Figure 2. Smathers material expenditures FY2002/2003 through FY2006/2007

Table 1. Materials expenditures FY2005/2006

	HSCL	Smathers	Total
Total materials expenditures	\$2,148,120	\$7,400,994	\$9,549,114
Total e-resource expenditures	\$1,097,225	\$3,729,440	\$4,826,665
Total expenditures for Big Deals	\$686,130	\$1,934,932	\$2,621,062
% of total materials expenditure devoted to e-resources	51%	50%	51%
% of total e-resources expenditures devoted to "Big Deal" packages	63%	52%	54%

Cost-effectiveness is defined as "the degree to which the decision making and planning in an organization have resulted in favorable or unfavorable ratios of advantages to costs."⁴ Other goals of the study were to gather information to help collection management librarians make informed decisions on future materials acquisitions, and to better organize usage statistics for individual disciplines, which could be reported to librarians, faculty, and researchers.

Setting

The main campus of UF, a major public, land-grant, and research university, is located in Gainesville, Florida. UF is among the nation's most academically diverse public universities, with sixteen

colleges offering more than one hundred degree programs, an enrollment of more than 42,000 undergraduates, and more than 10,000 full-time graduate students. The university includes more than one hundred research, service, and education centers, bureaus, and institutes, and has a teaching faculty of more than 3,000. A number of off-campus research-based sites, including the Whitney Laboratory for Marine Bioscience in St. Augustine, and agricultural research and extension sites are located throughout the state.

The UF Libraries form the largest information resource system in Florida, containing more than four million volumes and offering access to thousands of full-text electronic journals. The university library system

is composed of three main libraries: the Smathers Libraries, the Lawton Chiles Legal Information Center, and the HSCL, with a corresponding branch, the Borland Library, located in Jacksonville, Florida. Only two of these principal libraries on campus are included in this study: the Smathers Libraries (the primary campus libraries for clients in the social sciences, arts, humanities and general sciences) and the HSCL, which has the most comprehensive academic health collections in the Southeast.

The Smathers Libraries' collections match the educational and research needs of the majority of students and faculty at the university. The HSCL serve the six colleges of the Health Science Center: dentistry, medicine, nursing, pharmacy, public health and health professions, and veterinary medicine. At UF, all campus libraries collaborate very closely, particularly in the area of collection development, and have numerous consortial agreements with each other and with other state university libraries throughout Florida. The need for close collaboration in collection development and management is particularly true for the HSCL and the Marston Science Library (MSL), which holds the general science collection and is part of the Smathers Libraries. The collection managers of the two libraries (HSCL and Smathers) collaborate to avoid duplication while offering unique but essential online and print resources. As part of the UF and part of the greater UF Libraries, both Smathers and HSCL benefit from UF's membership in the statewide university consortia.

Literature Review

In 2001, Frazier, director of libraries at the University of Wisconsin, Madison, coined the term "Big Deal" to describe the bundled online journal packages offered by the large publish-

ers and subscribed to by escalating numbers of libraries.⁵ These Big Deal packages are often offered and distributed through consortial arrangements. Frazier denounced such deals as unfair for libraries because they must accept an entire package of journals and cannot select individual titles, and because the agreements too often force a growing dependence upon the publishers and bind the libraries into long-term, unequal business relationships. Instead, he recommended that libraries fight back by investing in new models of scholarly communication and publishing, such as the Scholarly Publishing and Academic Resources Coalition (SPARC) initiative.⁶ Four years later, Frazier expanded this argument by observing that “the Big Deals are not sustainable.”⁷ According to Frazier, this business model cannot sustain itself long-term because “all Big Deals are based on the presumption that libraries can continually increase expenditures for journals and that publishers must have perpetual revenue growth. This future cannot and will not happen.”⁸ Helfer agreed with this view and cited examples of renegotiations and cancellations of the Big Deal that occurred at the libraries of Cornell University, Harvard, and the University of California Library System.⁹ Promoting new models of scholarly communication, Helfer concluded “librarians are realizing that to continue to provide the scholarly journals their faculty write in and often edit, they will have to develop better economic approaches, and that the traditional models must change for them to do so.”¹⁰

In addition to advocating the development of new models of scholarly communication, some librarians are urging libraries and consortia to negotiate better package deals with the large publishers. Gatten and Sanville referred to these negotiations as an orderly retreat.¹¹ They cited the experience of the library consortium OhioLINK renegotiating deals

with large publishers by applying the concept of an “incremental attrition of content and annual cost without bringing the relationship to a crisis or destroying the essential benefits to both parties.”¹² Applying usage pattern data and other statistics to inform reduction in the number of under-accessed titles received through the Big Deals, OhioLINK’s “cost for content” model “allows for an annual reduction from the next year’s planned value of the license by an amount equivalent to the percentage of use that titles selected for discontinuation represent.”¹³

Not all librarians have seen problems with Big Deal agreements. Ebert, a director at a research library in upstate New York that is a member of a consortium, considered a Big Deal contract for Science Direct to be cost-effective, stating “we are getting significant added value for our dollars and our users are pleased with access to an enriched range of resources,” and concluding that “our usage levels indicate growth of use and a continuing reduction in the cost-per-article.”¹⁴

A number of presentations were given about Big Deal packages, especially as they pertain to library consortia, at the 2005 Charleston Conference. Bucknall defined the Big Deal and the attractive rates smaller academic libraries receive compared to those received by larger academic libraries, and discussed how “real costs” should be factored into the equation, together with patron satisfaction and cooperative sharing.¹⁵ He noted that, “each school will have to carefully weigh the many pros and cons before making a decision to participate in any specific Big Deal.”¹⁶ Bucknall then described how a group of thirty-eight institutions formed a buyer’s club for electronic resources and, through this consortium, made 2,300 titles available to users and saved approximately \$70 million. Bucknall stated that, although these numbers are impressive sounding, the key issues are whether the individual institutions’ patrons are

benefiting and whether usage statistics prove the cost effectiveness of the package.

Price identified the pros and cons of the Big Deal by using the contract for Elsevier’s ScienceDirect package with the Statewide California Electronic Library Consortium as an example.¹⁷ Price pointed out the negative side of the Big Deal and how the consortium’s institutions are being locked into packages, especially publisher-fixed subject collections, which could prevent individual selection of journal titles and create collection gaps and overpayment. The appealing aspects of these large deals include the many additional journals otherwise unaffordable individually, and flexibility in adding or deleting titles based on shared title lists and user statistics. Price recommended that libraries negotiate with the publishers on the deals and concluded that “sharing use data to build the optimal shared access list represents one way consortium members can work together to improve the quality of a product for their users.”¹⁸

Other authors have studied the use of e-resources. Franklin and Plum conducted a Web-based survey of 15,000 library users at four academic health science libraries and discovered “there were approximately four remote networked electronic services users for each in-house user. This ratio was even higher for faculty, staff and research fellows, where more than five remote users for each in-house user were recorded.”¹⁹ At the Medical College of Wisconsin Libraries, Kraemer determined that “electronic usage has quadrupled in four years, while re-shelving of print journals has dropped by more than half.”²⁰ Other studies reveal increased use of electronic resources as well as patrons’ preference for electronic resources. At Drexel University’s Hagerty Library, Montgomery and King conducted an analysis of the effect of library’s shift to electronic journals on staff and costs,

concluding, “when all costs are considered, electronic journals are more cost-effective on a per use basis.”²¹ Stemper and Jaguszewski recommended that libraries should examine usage statistics in a cost-effective manner, stating that “to better meet user needs and make every dollar count, librarians need apply the same sorts of data analysis to e-journals as they have traditionally applied to print journals, focusing on usage statistics, cost and cost per use.”²²

Data Collection

The UF Libraries have numerous license agreements arranged directly with publishers and, as a member of the State University Libraries system, benefit from numerous statewide consortial deals. Through these journal subscriptions and consortial agreements, the UF Libraries receives access to more than 40,000 full-text journals. With a budget of more than \$4.8 million for electronic resources, coupled with an established growth in library patron and off-campus use of electronic resources, a full-scale examination of usage statistics became imperative. To that end, the four-person team conducted two studies with the same primary objective: compare usage statistics with materials expenditures to determine if the online journals received from the Big Deals are cost-effective.

Both studies focused on vendor-supplied usage statistics derived from library patrons downloading full-text articles. The initial study, conducted in 2005, used data from the previous year to establish a benchmark. The statistics were received from COUNTER-compliant publishers for the calendar year 2004, and the study did not incorporate non-COUNTER-compliant titles. Online titles with no hits were verified for subscription and ready access; online titles preventing access were removed from further consideration. The team categorized

the titles into the broad disciplines of social science, humanities, science, and clinical medicine. The complete list of titles was then used to generate a random sample of 682 titles (10 percent) of the journal total, representing a .04 degree of accuracy. The second study was conducted in 2006 using data derived from calendar year 2005. Usage statistics from the same 682 titles used in the random sample from the first study were employed as a method of comparison between the two studies.

Findings

Through data analysis of the 2005 and 2006 studies, four major trends could be discerned:

- full-text downloads increased in all disciplines from 2004 to 2005.
- the general disciplines expose distinct differences in usage patterns.

- the usage variants lead to more cost-effective expenditures in some disciplines over others.
- the increased purchase of electronic resources has had a definite effect on the entire library materials budget and on the process of collection development.

In 2004, library users made 1,287,108 full-text downloads from all online journals at the UF Libraries; in 2005, they made 1,699,442 full-text downloads—an increase of 32 percent. Looking at the sample data for the two years, one can see that significantly more full-text downloads occurred in the basic sciences and clinical medicine, with a lower number of downloads from online journals in the Smathers’ subject areas of humanities and social sciences (see figure 3). Within this 682 title sample set, the difference in percentages between full-text downloads in the basic sciences and clinical medicine versus downloads in the humanities and social sciences is staggering. In

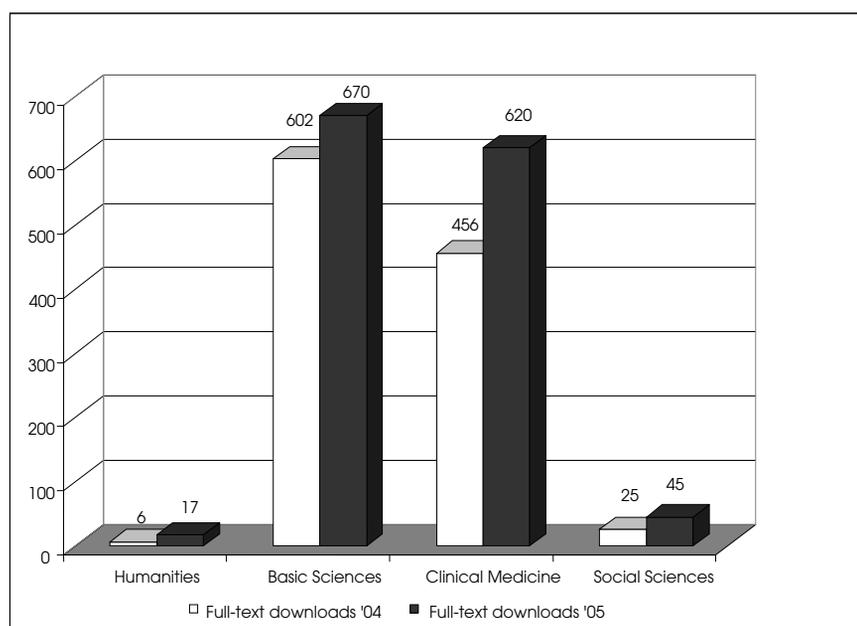


Figure 3. Comparison of full-text downloads by discipline

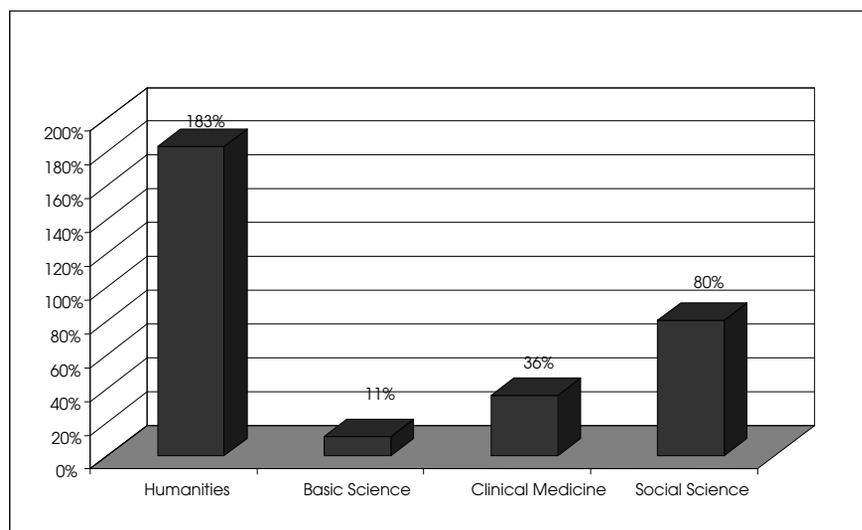


Figure 4. Comparison of use increase by discipline between 2004 and 2005

2004, 97 percent of the 1,089 full-text downloads occurred in the basic sciences and clinical medicine; in 2005, 95 percent of the 1,352 full-text downloads occurred in the basic sciences and clinical medicine.

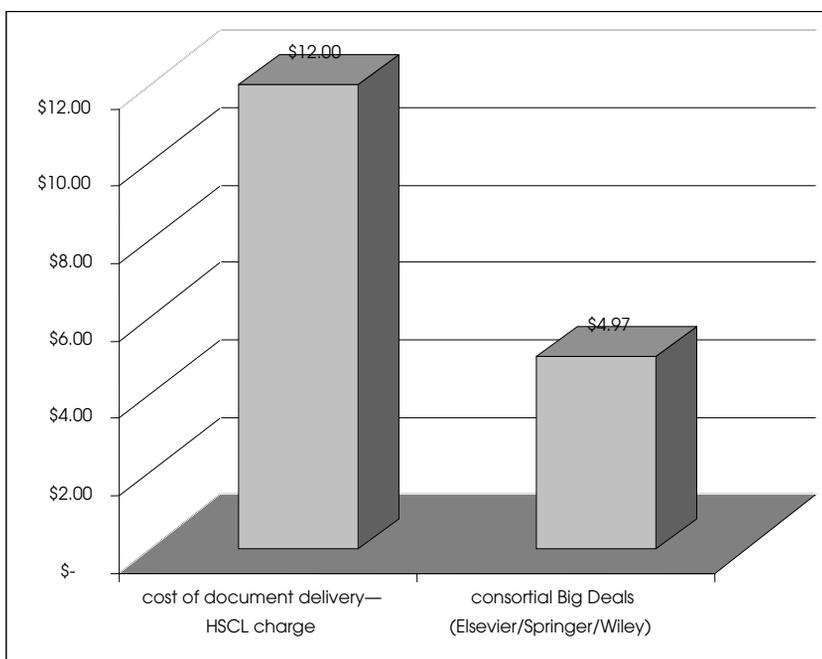
Research data collected on the 682 titles in the sample show a significant difference in the user activity by discipline during the two years. Between 2004 and 2005, one sees an appreciably higher percentage of growth of full-text downloads in the humanities and social sciences (see figure 4). This notable increase in usage for the humanities (183 percent increase) and social sciences (80 percent increase) compared to the basic sciences (11 percent increase) and clinical medicine (36 percent increase) may be because users of basic sciences and clinical medicine resources have embraced online journals for a longer period of time; hence the percentage of growth in these disciplines is now less significant than within the humanities and social sciences. Another interesting facet in the difference between the user groups of HSCL and Smathers is revealed in the usage statistics: online journals as a whole were much less used by patrons of the Smathers Libraries than by

patrons of the Health Science Center Libraries, despite the main library building and stacks being closed for a massive building renovation during the two years covered in the study.

In addition to increases in usage, the price per download for titles offered through the three largest pack-

ages shows the benefits of the Big Deal arrangements for patrons accessing these titles. Based on a sample snapshot, the average price per full-text download for online journals compared to the average cost of document delivery at HSCL reveals the significant benefit library patrons receives from Big Deal consortia agreements. While one cannot assume users would have requested all these articles through the document delivery services at HSCL the potential savings in document delivery fees (at \$12 per article) would be \$774,072—if all had been requested (see figure 5). Cost analyses are approximated but suggest that at the UF Libraries, that Big Deals offer a huge savings per download and access titles not available before the Big Deals were initiated.

While performing these studies, the team also attempted to trim unneeded, underused, and expensive online journals. Since cutting journal titles from Big Deal packages is difficult because of contractual obli-



*Comparison uses 2005 composite data. Cost of downloads by Big Deal publishers range from \$2.25 to \$7.82 per download.

Figure 5. Comparison of costs for document delivery versus downloads from Big Deals

gations, the team examined online journals received at HSCL from smaller or independent publishers hoping to save budget money by canceling titles. The team discovered very few titles received independent of the Big Deals that were both underused and expensive, concluding that canceling these titles would save little in the materials budget. Although this attempt to trim journal subscriptions did not identify titles to cancel, it did confirm that launching another cancellation project involving the smaller and independent publishers would not be worth the effort.

Conclusion

The research team developed a list comparing what was known going into the two studies and the surprises that came out of the findings; see appendix. One significant finding notes the relative cost-effectiveness of the electronic journal packages being received through the Big Deal, especially when these packages are measured by the number of full-text downloads compared to the cost of articles supplied by document delivery services at HSCL. Not only was there a demonstrated cost benefit for the UF Libraries through these Big Deals, the studies also showed a significant use of the titles not previously offered to library patrons and now being received through the bundled packages. The studies also determined an increase in users accessing the online journals across all four disciplines in the studies, although more usage is prevalent in the clinical medicine and basic sciences than in the humanities and social sciences. Of interest is that the largest jump of usage within the four disciplines occurred in the humanities and social sciences not clinical medicine and basic sciences.

Another key reason the team launched the studies was to explore the effects that the Big Deal licensing agreements were having on materials

budgets and selection. Not only did the studies document the same trend in material expenditures for both HSCL and Smathers libraries, they illustrated the increasing strain being placed on the material budget. The cost of the Big Deals to the UF Libraries' materials budgets is ever increasing and may threaten the future of the print collection. With so much of the HSCL's materials budget being spent on electronic resources, an increasingly smaller percentage of funds are available to purchase other library materials. After reference and textbook purchases are made each fiscal year at HSCL, the remaining monographs funds are so limited that book selection by collection managers is a declining necessity. In 2005, Anderson wrote "five years from now, journal and database inflation will have outstripped library budget increases for so long that what was once seen as a coming crisis will be the new reality, and the primary topic of discussion. High usage of these expensive resources will make administrators reluctant to cancel them, leading to a long-overdue look at usage levels for printed monographs—which, as we all know but don't like to say out loud, is very low. This will lead to drastic cuts in monograph budgets."²³

What Anderson eloquently summarized is an important issue facing librarians. Data collected at the UF Libraries showed expenditures for online journals and databases continuing to rise while expenditures for print journals and print monographs declined. The area of most concern for the Smathers Library is the print monographs budget, which also has suffered from years of flat budgets that have adversely affected the growth of those collections. Although the expenditures for print journals are declining appreciably more than expenditures for print monographs, this is seen more as a period of transition as the library refocuses its primary collecting parameters from print to online journals. The UF Libraries have received little in the way of new allocations to

cover the cost of electronic resources. As a result, the UF Libraries are facing the same issues and following the same spending patterns as many other academic and health science libraries in the United States. The two studies show that, despite a growing percentage of the materials budget being spent on online bundled packages, the Big Deal at the UF Libraries is a Good Deal if measured by overall use and by price per full-text downloads.

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Appendix. What We Knew and What Surprised Us

What we knew:

Numerous studies confirm that library patrons and researchers access health, medical, and general sciences library resources substantially more than library patrons who access resources in the humanities and social sciences do.

What we learned or surprised us:

Throughout both studies, usage statistics for Smathers online journals were still significantly below those of the HSCL, despite the fact that stacks in Smathers were closed due to a massive building renovation.

What we knew:

The Big Deal and consortia packages for online resources are siphoning an increasingly larger percentage of the library budget.

What we learned or surprised us:

Despite the HSCL's large expenditure for Big Deal packages, when considering the relatively low cost-per-article and access to increased numbers of online journals the UF Libraries'

patrons are receiving, the Big Deals in many cases are Good Deals.

What we knew:

The HSCL subscribes to online resources that are both underutilized and too expensive to be cost-effective and therefore should be reviewed for cancellation.

What we learned or surprised us:

After eliminating Big Deal package titles for individual cancellation, due to stipulated licensing agreements, we examined online journal subscriptions from independent publishers and discovered few titles that are both underused and expensive; thus, such cancellations would save little on the budget.

What we knew:

Approximately 10 percent of the HSCL's materials budget is spent on monographs, and after reference and text book purchases are made each fiscal year, the remaining monograph funds are so limited that book selection by collection managers is almost extinct.

What we learned or surprised us:

The current trend of expenditures seen in the HSCL's materials budgets from fiscal years 2002/03 through 2005/06 (i.e., a dramatic increase in expenditures for online journals, a decrease in expenditures for print journals, and flat line expenditures for print monographs) is mirrored almost exactly by the Smathers' materials budgets for the same time span.

What we knew:

Traditionally, libraries have always accepted the 80/20 rule (20 percent of the collection gets 80 percent of the use) as being the yardstick for general use of print journal collections.

What we learned or surprised us:

According to UF Libraries usage statistics of online journals, the 80/20 rule is more of an 80/30 or 80/40 rule.

Book Reviews

Edward Swanson

Cataloging Cultural Objects: A Guide to Describing Cultural Works and Their Images. By Murtha Baca, Patricia Harpring, Elisa Lanzi, Linda McRae, Ann Whiteside, on behalf of the Visual Resources Association. Chicago: ALA, 2006. \$85.00 (ALA members \$76.50) paper (ISBN 978-0-8389-3564-4/0-8389-3564-8)

Cataloging Cultural Objects (CCO) is a data content standard for use in creating records that describe works of art, cultural heritage objects, and their images. Describing these objects makes many demands upon the cataloger, since the materials can range from prehistoric carvings to paintings, photographs, textiles, or to every arch, dome, facade, and window of a building in addition to the entire building as a whole. Images documenting these objects often accompany the descriptive records for the objects, and these images must also be described, as the creator, creation date, view, and so on, are also valuable information. Unlike published texts (whose context is largely self-evident), art objects, cultural heritage objects, and their images must be contextualized by the cataloger so that intellectual access is possible. This is accomplished by creating detailed descriptions of these objects in addition to creating links between work records, image records, and authority records.

There are several standards for use in cataloging art, architecture, and cultural objects, but the greatest effort has been focused on data values (controlled vocabularies such as the *Art & Architecture Thesaurus*) or on data structures (metadata elements meant for expression within a database, such as *Categories for the Description of Works of Art*). Well-established descriptive cataloging

standards such as the Anglo-American Cataloguing Rules do have rules for describing “art originals,” but they are treated in an abbreviated manner more suitable for the description of published items; they lack the flexibility and detail necessary to describe unique cultural objects adequately. The lack of a comprehensive cataloging standard for these materials has resulted in a lack of consistency, which in turn has hampered the retrieval and sharing of information. *Cataloging Cultural Objects: A Guide* was written to fill this need for a comprehensive standard to “guide the choice of terms and define the order, syntax, and form in which data values should be entered into a data structure” (xii).

Cataloging Cultural Objects: A Guide is divided into three parts. The first part, “General Guidelines,” discusses general principles and guidelines for making cataloging decisions. The second part presents the CCO elements. The third part treats authority records. The book is intended to be a reference for use while cataloging. To aid the user, the layout of each part is the same, and pertinent information is repeated from chapter to chapter. Other helpful visual cues include numbered sections and recommendations in bold type. Elements that are required, controlled, and linked to an authority or another work record are clearly marked in the examples of full records. There is an index, a bibliography, and a glossary, although the language is so clear and jargon-free that a glossary almost seems redundant. Unfamiliar terms and concepts regarding data are defined and discussed in the text, and standard resources for art terminology are referred to throughout the text.

Although *Cataloging Cultural*

Objects: A Guide is meant to be used as a cataloging tool and not read cover to cover, part 1, “General Guidelines,” should be read in its entirety, since it provides a framework for using the rest of the book. Since the aims of cataloging art objects and images vary from institution to institution and collection to collection, CCO is not as prescriptive as other data content standards, and part 1 discusses the many decisions that the cataloging agency must make before beginning to catalog. Recommendations for analyzing a work, establishing a logical focus for a record, and for making local cataloging decisions are particularly valuable. Indeed, part 1 should be read by every cataloger because it reaffirms the principles of good cataloging, such as consistency, using established standards, documenting local rules, and considering the needs of the user and the institution when making cataloging decisions.

Part 1 also contains a section on database design and relationships, which discusses best practices for creating data that is interoperable, sustainable, and can be repurposed. CCO was written for the online environment, and while one of the key principles of CCO is that “cataloging, classification, indexing, and display are different but related functions” (2), it also considers the impact these issues have on the creation of data. Chapter 1 also discusses the different purposes to which descriptive data can be put: not only for finding aids but also in didactic tools, collection management systems, and digital asset management systems. This information will be useful for every cataloger wanting to know the principles of good catalog and database design.

Part 2, “Elements,” is divided into

nine chapters and lists and describes the areas of a work record. Each area, or element, gets its own chapter. Many of them, such as View Description (chapter 9) or Style (chapter 4), will be unfamiliar to the book cataloger; others, such as Title (chapter 1), will be familiar but have nuances and applications that are unique to art and visual resources cataloging. Each chapter begins with a description of the element in the context of art cataloging and discusses syntax, terminology, sources of information, and repeatable, required, and recommended elements. The rules for each element follow the introduction and are illustrated by copious examples. For areas such as Physical Characteristics (chapter 3), where the data can vary widely depending upon the object being described, specific recommendations are given for a wide variety of object types: paintings, drawings, prints, sculpture, furniture, glass, architecture, textiles, performance art, etc. Each chapter concludes with a full display of the entire work record, the linked authorities, and often an image of the work being described. Part 3, "Authorities," has the same format as part 2 but discusses the creation and function of authority records.

Cultural Cataloging of Objects: A Guide does not discuss technical or administrative metadata, but since these metadata are outside the scope of the standard this omission is not a flaw. Nor is it a flaw that CCO does not recommend a specific platform or database standard, since CCO was written to be used in a "variety of database settings and designs" (20). The first paragraph of part 1 discusses the mapping of CCO elements to metadata element sets such as VRA Core or the Categories for the Description of Works of Art (CDWA), which are in turn mapped to MARC and Dublin Core. The cataloging agency considering CCO might want to make use of published crosswalks, such as *Metadata Standards Crosswalks*.¹

Cataloging Cultural Objects: A Guide gives the cataloger tools to describe art, images, and cultural objects consistently. By writing a descriptive cataloging standard that also addresses indexing, linking records, and display—in short, the use and re-use of descriptive metadata—the authors have also laid the foundation for a new, sustainable catalog. Beyond its very real value to the art and visual resources cataloger, CCO can be used as a model for evolving cataloging codes.—*Sarah E. Quimby, (squimby@artsimia.org), Minneapolis Institute of Arts, Minneapolis, Minn.*

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Metadata and Its Applications in the Digital Library: Approaches and Practices. By Jia Liu. Westport, Conn.: Libraries Unlimited, 2007. \$40.00 paper (ISBN 978-1-59158-306-6).

Using the Open Archives Initiative Protocol for Metadata Harvesting. By Timothy W. Cole, Muriel Foulonneau. Westport, Conn.: Libraries Unlimited, 2007. \$45.00 paper (ISBN 978-1-59158-280-9/1-59158-280-6).

With every book on metadata I encounter, I scrutinize it as if I were a neophyte in the field, for I firmly believe in the instructive responsibility of the writers to enlighten the reader in a deliberate, thorough, and engaging manner. I thus approached these two works with this perspective in mind.

First, numerous texts describing metadata in varying degrees of depth and breadth have seen publication over the past decade. Joining this

assembly in 2007, *Metadata and Its Applications in the Digital Library* by Jia Liu provides yet another survey of metadata and its implementation in the electronic environments of libraries and archives.

Liu divides her work into two parts, delving first into the definitions, typologies, encoding, and related electronic aspects of metadata. The author's opening gambit "[s]imply put, metadata is data about data" (3) and her exegeses on other aspects of the topic presupposes a readership already experienced in the metadata field, whether in theory or in practice. As a result, newcomers may find themselves handicapped as they make their way through the text, although the exploration of some parts may still bear fruit. For example, chapter 4, "Metadata Implementation," examines the digital context of metadata with short and effective descriptions of terminology and practices common to the discipline: application profiles, namespaces, schemas, and crosswalks.

Another highlight in this chapter is Liu's fascinating but brief venture into the production workflow of metadata content, the case in point being descriptions of automated and manual processes for generating metadata such as the popular Web browser-friendly Dublin Core Metadata Template offered by the Nordic Metadata Project. I was gratified to encounter this important addition to the narrative that lies between the abstractions and particulars of metadata structure and the consequent public face of a digital library project. Metadata content production can easily get lost in the wealth of information concerning encoding, schemas, and application.

In part 2, "Metadata Projects and Their Applications in the Digital Library," Liu devotes thirty pages to international and institutional efforts to employ metadata for particular operations and communities. She reveals in the book's preface the international scope of her examination of

metadata, and in the last two chapters she illustrates this point through her selection of various European and Australian digital library and metadata projects for commentary. Considering the placement of digital libraries in the book's title, the author surprisingly sheds further light on these institutions only within the confines of the final chapter of the text.

I kept in mind while reading this book the notion that currency is always a concern with print publications devoted to perpetually shifting and expanding topics such as metadata. Some minor dissociation is expected in this circumstance, and yet for a book published in 2007 I was surprised to come across one reference to the next revision of the Anglo-American Cataloguing Rules as "AACR3" (19) and another comment on the "forthcoming" PREMIS (Preservation Metadata: Implementation Strategies) project report (64). Compare these statements with events two years prior to the release of *Metadata and Its Applications*: the Joint Steering Committee for the Development of RDA essentially stopped development of AACR3 and rechristened the new cataloging code Resource Description and Access (RDA), whereas the PREMIS project saw publication of the *Data Dictionary for Preservation Metadata* together with the first version of its PREMIS Data Dictionary.¹

This misalignment brings me to a major concern I have with this work. A surprising number of textual and layout errors appear; though for the most part minor in scope, they still summon frustration. These misprints take the form of missing letters from table headers, a mislabeled year in a citation, a pixelated image, and misdirected pointers to illustrations, among others. More serious oversights appear where a draft version of the text adjoins its final published form. Two adjacent paragraphs on page 124 effectively echo each other with regard to metadata crosswalks; the draft includes

the erroneous term "crosswork." In another instance, a lengthy quotation is set forth twice within a few lines of each other on page 57, with a modest discrepancy in content between them.

How these and other gross inaccuracies survived the editorial process I cannot say, but it bears the poor impression of a work carelessly run to press despite its seemingly lengthy gestation period. (For the record, I base this review on the first printing of the text.)

But, beneath these problems, I find a worthy effort by Liu to provide a wealth of information on digital library metadata. Sifting through a myriad of source material to forge a generalist text on this topic is a notable feat. Nevertheless, from another editorial sweep through the text would emerge a better work and a commendable adjunct, if not successor, to the metadata guide I cut my teeth on: the now five-year-old *Metadata Fundamentals for All Librarians* by Priscilla Caplan.²

The half-page summary Jia Liu devotes to the Open Archives Initiative Protocol for Metadata Harvesting (OAI-PMH) finds full expression in Timothy W. Cole and Muriel Foulonneau's *Using the Open Archives Initiative Protocol for Metadata Harvesting* (hereafter *Using the OAI-PMH*). Their work is a rich and at times densely written examination of the protocol from historical, theoretical, and practicable perspectives.

OAI-PMH is a technological convention by which descriptive metadata for digital documents available on the World Wide Web is read and gathered (harvested) through automated means by data-collecting organizations, who in turn compile this information into large pools and make it available to the public for searching—in effect, a fashioning of union catalogs of digital library resources. The preceding statement is a fundamental definition and reflects the extent of my knowledge regarding the protocol when I received

Using the OAI-PMH for review. This turned out to be a fortuitous happenstance, for the authors shaped their work with the student in mind. Like Liu's *Metadata and Its Applications*, Cole and Foulonneau build on their themes incrementally; moreover, to test the reader's grasp of the material, they cap each chapter with a series of discussion questions and suggested exercises. The authors explicitly aim their primer at those with prior knowledge of metadata, traditional library cataloging, and intermediate computer skills. In this light, *Using the OAI-PMH* is best suited to graduate students in advanced library systems or higher-level metadata courses. Yet the non-scholastic individual also can gain much from the reading whether through self-study or professional development opportunities.

After defining OAI-PMH and establishing the background for the development of the protocol in the first part of the work, including demystifying the notion that OAI-PMH employs only unqualified Dublin Core as a vehicle for metadata exchange, the authors set upon a studied trek through various technical matters in part 2, "Protocol Implementation." One such topic of exploration is the protocol-driven content of the metadata shared between its creators (whom Cole and Foulonneau call "data providers," like digital libraries) and those that harvest the metadata ("service providers"). Helped along by the authors' cogent, though at times challenging, presentation, this section brought to light many of the details missing in my loose notion of what defines the OAI-PMH.

Chapter 7, "Post-Harvest Metadata Normalization and Augmentation," and chapter 8, "Using Aggregated Metadata to Build Digital Library Services," characterize not only the user-centric end—"services that address user and institutional needs" (162)—that justifies the metadata-sharing means described in the previous chapters,

but stress as well the establishment of clear communication between the metadata providers and the harvesting agents. The authors point out that for OAI-PMH to work most effectively, each party must understand and acknowledge the motivations and processes of the other beyond the mere mechanical exchange of metadata. These collaborative activities include the recognition of collection development policies, encoding practices, and the correction, enhancement, and normalization of shared metadata. One outcome from this understanding is richer, more complex metadata that Cole and Foulonneau see as fueling the next generation of resource sharing projects and protocols; this future they summarize in their final chapter, "Concluding Thoughts."

In sum, *Using the OAI-PMH* is an excellent introduction to this most popular form of metadata exchange and I believe a suitable handbook for practitioners in the digital library and data harvesting fields.

I end with a final word on back matter. *Metadata and Its Applications* and *Using the OAI-PMH* provide end-of-chapter citations, many of which point to online resources; the former also incorporates a culminating comprehensive bibliography. Reflecting the generous amount of information all three authors present, the indexes in both texts are quite detailed, though I did discover an irregularity in Liu's work, namely, references to AACR2 and AACR3 as the second and third volumes, respectively, of the Anglo-American Cataloguing Rules rather

than as editions of the same. *Using the OAI-PMH* is ostensibly a textbook, and in that capacity I am of the opinion that it would benefit the reader had the authors included a glossary of most or all of the highlighted terms present throughout the text—Mark K. Ehler, (ehler043@umn.edu), *MINITEX Library Information Network*, Minneapolis, Minn.

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