

# Reference in the Age of Wikipedia, Or Not...

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Note: The following is a reconstruction of the keynote address at *Reference Renaissance: Current and Future Trends*, August 4, 2008. It was published in *Reference Renaissance: Current and Future Trends*. Edited by Marie Radford and R. David Lankes. New York: Neal-Schuman Publishers, 2010. Pages 3-16.

## Introduction

The title of my talk today is purposefully provocative. But it is not because I believe that reference in the age of Wikipedia is dead, but rather that in the time of Wikipedia we need to be able to ask and answer the question implied by the, “or not...” We all know that the old models of reference work no longer are adequate. Our challenge is to be able to affirmatively explain what it is we do and how it adds value.

Today I want to cover a number of topics. I’ll start with a definition and move to a consideration of alphabetical order. We will proceed to a short history lesson on three revolutions. Then I will present an opening quote and an example of the world we live in. We will then move to part one of a consideration of change using the work of Clayton Christensen. After an interlude with ChaCha, we will consider change in light of the work of Clay Shirky. After that we will sample some wisdom from Paul Krugman and *Wired*, looking at “Free” and “Better than Free.” We will finish with four questions, some answers, an uplifting quote, and a final challenge.

## Definition

Renaissance [F., f. *renaître to be born again, after naissance birth*: cf. *RENASCENCE*.]

1. a. The great revival of art and letters, under the influence of classical models, which began in Italy in the 14th century and continued during the 15th and 16th; also, the period during which this movement was in progress.
2. Any revival, or period of marked improvement and new life, in art, literature, etc. (Oxford English Dictionary, accessed 2009).

We are here today to consider the proposition that reference work is in a renaissance. I am not sure if we are in a “period of marked improvement and new life,” but I am confident that if we are, it is not because we are in a “great revival... under the influence of classical models.” If reference is in a renaissance it is because we are finding new ways to apply the remarkable tools that are now at our disposal.

### Alphabetical Order

In his wonderful history of reference works, Tom McArthur calls our attention to the fact that until the advent of printing, alphabetic order, though of course it existed, was not thought of as a way to arrange knowledge. As he states:

Although some properly alphabetic works appeared before Gutenberg printed his first book, the printing press seems to have been the factor that changed everything in favor of non-thematic ordering. Compositors were constantly re-shuffling the letters of the alphabet around as small hard metal objects in trays and in composites. They and their associates — which included many writers who were wont to frequent print shops — became as a consequence increasingly at home with the convenience that the alphabet offers as an invariant series. Where scholars and copyists had previously been unaccustomed even to thinking of words and parts of words alphabetically, printers were now spending a great part of their time doing nothing else. (McArthur, 1986:77)

In describing the difference between thematic and alphabetic organization McArthur goes on to say, “This dichotomy is far-reaching, however, because it operates first at a real practical level in terms of how works of reference are used and also at an ideal and theoretical level with regard to how information is best presented and understood.” (McArthur, 1986:80)

I think it is important as we stand at the beginning of a revolution as profound as the invention of printing, that we recognize that just as alphabetical order arose as a technique to help order the vast increase in knowledge that the printing press made possible, that there will be new tools, many that we cannot yet imagine, that will rise to bring order to the wealth of information made possible by the Web. And just as alphabetical order was seen as crude and even offensive to the scribes and scholars of the time, so the new techniques will probably seem crude and even offensive to us. But in the end these tools, like alphabetical order, will become commonplace.

### A Little History: Three Revolutions (based on Lewis, 2006)

Our brief history lesson will consider three revolutions:

1. The invention of printing in the 15<sup>th</sup> century
2. The industrialization of printing in the 19<sup>th</sup> century
3. The development of the Internet and the Web in the late 20<sup>th</sup> century

In all three cases, the capacity to reproduce knowledge increased by several orders of magnitude. Knowledge escaped the established institution and elites that had previously controlled it. And importantly for our consideration, new technologies and practices to manage the increased production of knowledge were required and developed.

With the development of printing in 15<sup>th</sup> century, the scribal culture, which had managed and controlled access to knowledge for several millenniums, vanishes. The church could no longer control the dissemination of knowledge. New tools for managing knowledge such as alphabetical order, as discussed above, dictionaries, encyclopedias, and scientific journals were developed to take advantage of the power of print. In this process reading and writing went from being a professional activity practiced by scribes and scholars to an amateur activity practiced by a large portion of the population.

Our second revolution was the industrialization of printing in the 19<sup>th</sup> century, It was made possible by the invention of the steam driven printing presses and steam driven paper making machines, which made wood pulp paper. This combination created mass circulation newspapers, dime novels, and cheap schoolbooks. In most western cultures literacy became nearly universal. The invention of the pencil and the fountain pen in combination with cheap paper made the keeping of diaries and letter writing possible for the masses.

Among the most important responses to the increase in information made possible by the industrialization of printing was the library, as we know it. Classification schemes, card catalogs, and reference assistance were all developed in the late 19<sup>th</sup> century, and with Carnegie funding the public library, as we know it, was created. It is important to understand that this is the culture from which we all come. These tools and these approaches to service have shaped our thinking. When I started in libraries a little over 30 years ago, the most important thing that a library did was to keep millions and millions of small pieces of paper in order. We did many other things, of course, but if the pieces of paper were not in order, nothing else mattered. It is important to recognize as we face the third revolution how the previous revolution has shaped our thinking and the culture of our organizations.

The final revolution is the one happening all around us today, that of the Internet and the Web. It threatens to disrupt everyone involved in print publication and distribution, including us. In much the same way that Gutenberg made literacy an amateur activity, the Web makes the production and distribution of all forms of content an amateur activity. It makes possible the easy sharing and creation of content. The tools libraries created in the second revolution are not adequate to organize the huge increase in information this third revolution has created. Some of you may recall that brief period, I believe it was in the spring of 1994, when librarians thought they could catalog the Web. It was a short-lived and now humorous conceit. The successful efforts are network level tools that track user behavior used to organize and find information. Google and Yahoo work because they operate at network scale and because they use algorithms not human decision-making. Authority control and Boolean searching are clearly not longer adequate to the task at hand.

## Opening Quote

So finally we come to the opening quote. It comes from Clay Shirky, who says in this very important recent book, *Here Comes Everybody*:

New technology makes new things possible: put another way, when new technology appears, previously impossible things start occurring. If enough of those impossible things are important and happen in a bundle, quickly, the change becomes a revolution. The hallmark of revolution is that the goals of the revolution cannot be contained by the institutional structure of existing society. As a result, either the revolutionaries are put down, or some of those institutions are altered, replaced, or destroyed.... Many institutions we rely on today will not survive this change without significant alteration, and the more an institution or industry relies on information as its core product, the greater and more complete the change will be (Shirky, 2008:107).

We are of course in an industry where information is core, and so Shirky's quote should give us pause. We need to recognize that if we do not alter our practice and our institutions it is likely that we and they will be replaced or destroyed for it seems extremely unlikely that the revolution we are living through will be put down.

## An Example of the World We Live In

Prominent in the promotion for the conference is the line, "Rumors of the 'death of reference' have been greatly exaggerated." This is, of course, a play on the famous Mark Twain quote.

You need to know that I started my library career as a reference librarian, but it has been many years since I have been an active practitioner. I thought it might be interesting to see what it would take to verify the Twain quote today. So of course I went to Google and typed in "twain quotes death." The first item returned was entitled "Mark Twain quotations – Death" at [www.twainquotes.com/Death.html](http://www.twainquotes.com/Death.html).

Clicking through to the site you find not only an explanation that there are many variations of the "report of my death" quote, but that the original note was written May 1897. A reproduction of the original letter is then provided along with a transcription. This is about as good an answer to the question as you can get. Fully documented down to the note in Twain's hand. For comparison, I checked some printed quotation books and while they generally provided the correct answer, with some variation, they were not as complete and none had the reproduction of the actual note.

This might have been a unique case and I might have been lucky, but I think not. To me this shows clearly the power of the tools we live with. They are available to anyone with an Internet connection and can easily, in many cases, be used to find the answers people need without libraries or librarians.

## Thinking About Change: Clayton Christensen

As we consider the change that is taking place around us I think it is important to look at theory. We are fortunate that a number of scholars have done good work in this area. Among the most important is Clayton Christensen. In his book the *Innovator's Dilemma* (Christensen, 2000), he provides a theoretical basis for looking at situations, as the subtitle puts it, "when new technologies cause great firms to fail." I will also draw from his second book *The Innovator's Solution* (Christensen and Raynor, 2003) and his third book, *Seeing What's Next* (Christensen, Anthony, and Roth, 2004). In his first book Christensen develops "Disruptive Innovation Theory" that allows the simple, cheap, and revolutionary to overpower firms even when these firms are well established and well run. In the second book, Christensen refines this work with his theory of "Resources, Processes, and Value Theory," which defines the building blocks of capabilities. This theory both explains why some firms are unable to escape the trap of disruptive innovation and provides guidance on strategies to effectively deploy such innovations.

Christensen summarizes his first theory:

Disruptive innovation theory points to situations in which new organizations can use relatively simple, convenient, low-cost innovations to create growth and triumph over powerful incumbents. The theory holds that existing companies have a high probability of beating entrant attackers when the contest is about *sustaining* innovations. But established companies almost always lose to attackers armed with *disruptive* innovations. (Christensen, Anthony, and Roth, 2004: xv)

A sustaining innovation improves the performance of established products along dimensions of performance that mainstream customers in major markets have historically valued. Relationships, cost structures, and organizational dynamics are unchanged. Even though technology can, and often does, change radically.

Disruptive innovations bring a different value proposition to the market. Initially they underperform established products in mainstream market, but the products improve at a rapid rate and are superior in ways that are not valued by the established market. Most often they are more reliable, easier to use, or cheaper.

Important to Christensen's theory is the notion of "performance oversupply." As he explains it:

One bedrock finding from our research is that companies innovate faster than customer's lives change. In other words, what people are looking to get done remains remarkably consistent, but products always improve. Thus, products eventually become too good. (Christensen, Anthony, and Roth, 2004: 12)

Customers whose needs have not yet been fully met are, as Christensen puts it, "undershot." When customers are undershot they continue to pay a premium for improvements in functionality. When customers' needs are met they are "overshot" and they no longer will pay a premium for improvements and the basis of competition changes. Companies selling to overshot customers are vulnerable to disruptive attacks.

When attacked, they often move upmarket to sell to more demanding customers. Highend users don't yet value the disruptive innovation because it does not yet meet their functional needs.

For an example of how this works in our world, think of the typical freshman who needs to write a short paper using five scholarly resources. As long as the student cannot get five good scholarly sources from the open Web, the student will need to use the library. But as soon as those five good scholarly resources can be found on the Web, it does not matter one wit to the student that the library has five hundred good resources. What matters is that it is 2:00 in the morning and the library is closed and the Web is not. The basis of competition has changed and the library loses and the Web wins. Often the librarian's response to the loss of freshman use of the library was to move upmarket, and argue that freshman weren't really our important customers. We will focus on our work with graduate students and faculty. Of course the number of scholarly resources on the Web is growing at a faster rate than the resources in libraries and it is only a matter of time before graduate students and then faculty will find themselves in the same situation as our hypothetical freshman, and they will respond the same way. In fact it is likely that particle physicists and computer scientists have already reached this point.

Christensen says, "If the technology can be developed so that a large population of less skilled or less affluent people can begin owning and using, in a more convenient context, something that historically was available only to more skilled or more affluent people in a centralized, inconvenient location, then there is potential for shaping the idea into a newmarket disruption." (Christensen and Raynor, 2003: 49-50) This seems to be a perfect description of libraries today. Print libraries are centralized, inconvenient and often require an expert's intervention to be used effectively. The technology of the Web is everywhere and easy. And as we all know, but are not always willing to admit, our historic product is being disrupted.

In considering disruptive innovation, Christensen provides some guidance.

1. Markets that don't exist can't be analyzed. The experts, including you, will be wrong. He argues for what he calls exploratory development that is learning through small-scale development projects. Libraries often have trouble with this approach. Our habit is to create a task force, do a literature search, talk to each other, and write a report. Christensen would argue that a year's experience, even with failure, is more valuable than the work of even the best task force. Remember the experts will be wrong.
2. A corollary to this is that you should not invest all your resources on the first effort. You are likely to be wrong and will need to try a second and a third time. Again, libraries tend to have trouble with this approach. Maybe because our budgets are often constrained, we tend to spend whatever we have on our first try.
3. Don't ask your customers what they want, rather watch what they do. Like the experts your customers will be wrong about disruptive technologies, but they will adapt quickly in the ways they can use them.

4. Be impatient for profits, but patient for growth. I translate this in the library environment as: be impatient for success of the pilot, but patient in taking it campus-wide. This creates the right incentives for risk taking. The push on the pilot forces risk-taking, and by not being in a hurry to grow the project the risk of failure is lessened.

In explaining why established organizations have trouble seeing and adopting disruptive innovations, Christensen develops “Resources Processes Value Theory.” As he says:

The resources, processes, and values (RPV) theory explains why existing companies tend to have such difficulty grappling with disruptive innovations. The RPV theory holds that resources (what a firm has), processes (how a firm does its work), and values (what a firm wants to do) define an organization’s strengths as well as its weaknesses and blind spots. (Christensen, Anthony, and Roth, 2004: xvii).

Resources are the things an organization can buy or sell, build or destroy. Customers and investors provide them and they are, by their nature, flexible. Processes are the established ways organizations turn resources into products and services. Values are the criteria by which prioritization decisions are made. Processes and values don’t change easily. This allows the organization to be consistent in the way it makes decisions. In most situations consistent process and values are a key factor in an organization’s success.

But when an organization confronts a disruptive innovation these same consistent processes and values become impediments to change. Since disruptive innovations bring a different value proposition to the market, organizations with established approaches cannot see the value of pursuing it, or the innovation will be “crammed” into the existing values and processes and thus will lose its potential. Christensen argues that the only way to develop disruptive innovations in established organizations is to create a separate “skunk works” that is outside the established organization and can operate with different processes and values. This will be difficult for most libraries to do.

#### Interlude: ChaCha.

I want to talk now about ChaCha, not the Cuban dance, but ChaCha the service that answers questions over mobile phones. The service is free, though standard text messaging rates and voice minutes may still apply. Answers are limited to the 160 characters of a standard text message and the “guides” who respond to the questions are relatively low paid amateurs. ChaCha might be viewed as a challenger for established library reference services, but it is difficult to get overly concerned with a service that seems best positioned to settle bar bets. But then it is available from anywhere, at least anywhere with cell phone service, at any time. If the answers get to be good enough, can a traditional library compete? ChaCha is using a disruptive model to make money by providing answers to simple questions, but if they get better at answering questions and they start sending web pages to G3 phones, the current limits of their capacity fall away and they could easily challenge a core part of library reference work.

[At this point in the presentation the video of the ChaCha Commercial was played.  
Available at: <http://answers.chacha.com/about-chacha/how-it-works>.

(Accessed March 18, 2009.)]

### Thinking About Change: Clay Shirky

The subtitle of his book is *The Power of Organizing Without Organizations* and it explores how what he calls the new social technologies of the Internet allow individuals to share, create, and act collectively without the organizational overheads that had previously been required. This can be thought of as the cooperation revolution. As he puts it, “The centrality of group effort to human life means that anything that changes the way groups function will have profound ramifications for everything from commerce and government to media and religion.” (Shirky, 2008: 16) He goes on:

We are living in the middle of a remarkable increase in our ability to share, to cooperate with one another, and to take collective action, all outside the framework of traditional institutions and organizations... The difficulties that kept self-assembled groups from working together are shrinking, meaning that the number and kind of things groups can get done without financial motivation or managerial oversight are growing. The current change in one sentence is: most of the barriers to group action have collapsed, and without those barriers, we are free to explore new ways of gathering together and getting things done. (Shirky, 2008: 20-21)

In much the same way that the invention of the printing press made literacy an amateur activity, the current Internet revolution makes content creation a mass amateur activity and this leads to the large scale sharing of content. To quote Shirky again, “An individual with a camera or a keyboard is now a non-profit of one, and self-publishing is now the normal case... This technological story is like literacy, wherein a particular capacity moves from a group of professionals to become embedded within the society itself, ubiquitously, available to a majority of citizens.” (Shirky, 2008: 77-78) This creates a world quite different from the one we, as librarians, are comfortable with and it challenges the authority of what we do. In this world content is published first then filtered. Shirky argues that the mass amateurization of publishing requires mass amateurization of filtering.

Speaking directly to us Shirky says, “When a profession has been created as a result of some scarcity, as with librarians or television programmers, the professionals are often the last ones to see it when that scarcity goes away. It is easier to understand that you face competition than obsolescence.” (Shirky, 2008: 58-59) To me this was a wake-up call.

Shirky devotes a full chapter to Wikipedia and why it is successful. I am sure that if you were to go back several years you would have found few reference librarians who were champions of Wikipedia, after all, as we said back then, “anyone can change it.” Now most of us are converts, at least when it comes to answering our own questions. Christensen would explain that Wikipedia is successful because it brings a different value proposition and because it gets better quicker than competitive products. Shirky explains the social processes that produce the new value proposition and why it could get better so fast. As he explains, “Encyclopedias used to be



the kind of thing that appeared only when people paid for them, yet Wikipedia requires no fees from its users, nor payments to its contributors. The genius of wikis, and the coming change in group effort in general, is in part predicated on the ability to make nonfinancial motivations add up to something of global significance.” (Shirky, 2008: 133) He goes on, “Because Wikipedia is a process not a product, it replaces guarantees offered by institutions with probabilities supported by process: if enough people care enough about an article to read it, then enough people will care enough to improve it, and over time this will lead to a large enough body of good enough work to begin to take both availability and quality of articles for granted, and to integrate Wikipedia into daily use by millions.” (Shirky, 2008: 139-140)

Wikipedia is successful even though “anyone can change it” because it combines both innovative technology and a new social contract. To once again quote Shirky, “As with every fusion of group and tool, this defense against vandalism [in Wikipedia] is the result not of a novel technology alone but of a novel technology combined with a novel social strategy. Wikis provide ways for groups to work together, and defend the output of that work, but these capabilities are available only when most of the participants are committed to those outcomes.” (Shirky, 2008: 137)

As we look to implement new tools and services, we can learn from Shirky. He argues that successful social tools require three things:

1. A plausible promise to attract users.
2. An effective tool, which makes community possible.
3. An acceptable bargain that creates community.

I believe one of our great challenges is to create a set of social tools that will in turn create open scholarship and open information. To date we have been focused on the effective tool. This is the easy part. The hard part is the plausible promise and the acceptable bargain.

In considering open systems Shirky suggests they are successful because they:

1. Lower the cost of failure, but not the likelihood of failure — this provides the means to explore multiple possibilities and increases the likelihood of finding successful solutions.
2. Do not create a bias in favor of predictable but substandard outcomes.
3. Make it simple to integrate the contributions of people who contribute only one good idea.

Scholarship should work this way, but in a world where much scholarship has been commercialized, it does not.

### Interlude: Paul Krugman

In a June 2008 New York Times column Paul Krugman wrote:

Bit by bit, everything that can be digitized will be digitized, making intellectual property ever easier to copy and ever harder to sell for more than a nominal price. And we'll have to find business and economic models that take this reality into account. It won't all happen immediately.

But in the long run, we are all the Grateful Dead. (Krugman, 2009)

His point was that the current publishing models were dying and that like the Grateful Dead, who made their money in large part on concert tickets and t-shirts, authors and other content creators will need to find different models to support themselves.

### Wisdom from *Wired*: "Free" and "Better than Free"

[At this point in the presentation the video of Chris Anderson discussing "Free" was played. Available at: [http://www.wired.com/techbiz/it/magazine/16-03/ff\\_free](http://www.wired.com/techbiz/it/magazine/16-03/ff_free) (Accessed March 18, 2009).]

Chris Anderson, the editor in chief at *Wired*, in his article, "Free! Why \$0.00 Is the Future of Business," argues that all of the feed stocks of the digital world — processing, storage, and bandwidth — are getting cheaper and that, though they will never reach zero, they will get so cheap that things that once cost money can be given away for free (Anderson, 2008).

As he says:

In 1954, at the dawn of nuclear power, Lewis Strauss, head of the Atomic Energy Commission, promised that we were entering an age when electricity would be "too cheap to meter." Needless to say, that didn't happen, mostly because the risks of nuclear energy hugely increased its costs. But what if he'd been right? What if electricity had in fact become virtually free? The answer is that everything electricity touched — which is to say just about everything — would have been transformed... Today it's digital technologies, not electricity, that have become too cheap to meter. It took decades to shake off the assumption that computing was supposed to be rationed for the few, and we're only now starting to liberate bandwidth and storage from the same poverty of imagination. But a generation raised on the free Web is coming of age, and they will find entirely new ways to embrace waste, transforming the world in the process. Because free is what you want — and free, increasingly, is what you're going to get. (Anderson, 2008).

So in a world where most things on the Web are free, what will people pay for? This is the question asked and answered by Anderson's *Wired* colleague Kevin Kelly. Kelly begins by noting that the Internet is fundamentally a big copy machine and that the copies have become in essence, free. He goes on:

When copies are free, you need to sell things which cannot be copied.

Well, what can't be copied?

There are a number of qualities that can't be copied. Consider "trust."

Trust cannot be copied. You can't purchase it. Trust must be earned, over time. It cannot be downloaded. Or faked. Or counterfeited (at least for long). If everything else is equal, you'll always prefer to deal with someone you can trust. So trust is an intangible that has increasing value in a copy saturated world. (Kelley, 2008)

Kelley then goes on to enumerate the "Eight Generatives Better Than Free." I will quote him at length:

*Immediacy*—Sooner or later you can find a free copy of whatever you want, but getting a copy delivered to your inbox the moment it is released -- or even better, produced -- by its creators is a generative asset...

*Personalization*—A generic version of a concert recording may be free, but if you want a copy that has been tweaked to sound perfect in your particular living room — as if it were preformed in your room —you may be willing to pay a lot...

*Interpretation*—As the old joke goes: software, free. The manual, \$10,000. But it's no joke. A couple of high profile companies, like Red Hat, Apache, and others make their living doing exactly that...

*Authenticity*— You might be able to grab a key software application for free, but even if you don't need a manual, you might like to be sure it is bug free, reliable, and warranted. You'll pay for authenticity...

*Accessibility*— Ownership often sucks. You have to keep your things tidy, up-to-date, and in the case of digital material, backed up... Many people, me included, will be happy to have others tend our "possessions" by subscribing to them...

*Embodiment*— At its core the digital copy is without a body. You can take a free copy of a work and throw it on a screen. But perhaps you'd like to see it in hi-res on a huge screen? ... but sometimes it is delicious to have the same words printed on bright white cottony paper, bound in leather...

*Patronage*— It is my belief that audiences WANT to pay creators. Fans like to reward artists, musicians, authors and the like with the tokens of their appreciation, because it allows them to connect. But they will only pay if it is very easy to do, a reasonable amount, and they feel certain the money will directly benefit the creators...

*Findability*— Where as the previous generative qualities reside within creative digital works, findability is an asset that occurs at a higher level in the aggregate of many works. A zero price does not help direct attention to a work, and in fact may sometimes hinder it. But no matter what its price, a work has no value unless it is seen; unfound masterpieces are worthless.

I think it is interesting to look at the eight generatives identified by Kelly and consider where the library is likely to have any chance of success when competing against network level providers. It seems unlikely that libraries will be able to provide immediacy or personalization more effectively than network level providers. We may have some advantages in the area of interpretation, though I believe this will be the case only to the extent that we have a deeper knowledge of our users than is typically now the case. Authenticity is still a part of the library brand and so, at least for now, we may have an advantage, but it may be hard to maintain over time. Accessibility is interesting to me because I think there is a role we can play, particularly with researchers. The part of ownership that sucks for them is the long-term management and access to the results of their old research. I believe libraries can and should fill this role. Embodiment should work to our advantage since we have the books. Patronage might work for some authors and rock bands, but I have never known it to be particularly effective for libraries. Finally, findability, once our stock and trade, is now clearly in the network realm. Authority control and Boolean searching are no match for the algorithmic solutions offered by Google.

So at best, libraries have some advantage with half of Kelly's generatives.

#### Four Questions and Some Answers

As we approach the conclusion, I would offer four questions to help us focus on our future as reference librarians.

1. What happens if information skills become a mass amateur activity?

We should move upmarket and focus on high quality interactions with sophisticated users with hard questions. Will require librarians who are specialist rather than generalist. This strategy will work for a while.

Support the teaching of information skills and provide remedial support.

2. Can we survive with one foot in the world of proprietary content and one foot in the world of the open web?

Not well and not for long.

We need to support open access and open scholarship. We will also need to create the social tools to make this possible.

3. What is the role of institution level services in a world of network level tools?

We will need to accept that users will gravitate to the network level and that network level tools don't scale down.

We will be effective when we create local content that can be used by network level tools.

4. Do we focus our support of users in their role as information consumers or as information creators?

Yes, but the second will become more important over time.

### Uplifting Final Quote

I will end as I started with a quote from Clay Shirky. This quote though looks not at what will be lost or changed, but rather on the good that will come from the revolution.

Emblematic of the dilemmas created by group life, the phrase “free-for-all” does not literally mean free for all but rather chaos. Too much freedom, with too little management, has generally been a recipe for a free-for-all. Now, however, it isn’t. With the right kinds of collaborative tools and the right sort of bargain with users, it is possible to get a large group working on a project that is free for all. (Shirky, 2008: 253)

### Challenge

My final challenge to you comes from Peter Senge who said in April 2008 at *Living the Future 7*, “The world’s knowledge belongs to the world” (Senge, 2008). For me this means that we, as librarians, must create the tools and communities for open scholarship and open information so that knowledge can be abundant in our communities, and that we must do this whatever that consequences are for libraries and librarians.

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