Digital Libraries in the 21st Century Global Environment

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Abstract
This paper will consider some of the influences that will shape the digital libraries of the 21st Century, as increasingly, society and its activities become global in reach. These influences include: vast new numbers of information consumers; the scale and speed of the new world; urgency in environment and health concerns; English as a lingua franca; special challenges for universities and their libraries; and the 21st Century as a time when a truly global community comes into its own. Several projects typical of the new century will be described, briefly, as typical of the big-thinking ways that will characterize library activities.

Digital libraries belong to the 20th Century
The idea of digital libraries belongs to the 20th Century. It will take us many years of the 21st Century to build them into the robust and comprehensive collections that we have imagined them to be, but the imagining has long since been done. From Vannevar Bush in the 1940s to the Internet Archive and the Million Book Project of the 1990s, the vision of a huge store of digitized information, instantly searchable and universally available, is one we are all familiar with. When Google or its next competitor begins the next phase of one of their great projects, we are not surprised – even the broadest general public following these developments in the mass media “gets it” about the underlying idea.

The underlying idea is fundamentally conservative – a thing of the 20th Century. It assumes that we know what libraries are, we know who the readers and potential readers are, and that we are using digital technology to automate the familiar, speeding things up, making them bigger, and delivering them to new consumers. The Google searcher, waiting for a slightly cumbersome interface to bring up flippable pages in the most book like representation possible on a laptop screen, or on Amazon’s trendy ‘Kindle’ e-book reader, is caught in intellectual property restrictions that make it best qualified to deliver pre-1923 books!), and thinking in ultimately very familiar terms.

The books the Google print reader flips through today were mostly written by men in first world settings and brought to readers by librarians who were largely women in a profession that has had something of the hand-maiden about it. What I have tried to do is get out of that box of projecting the future as more of the present and speak of a different future, in which ‘library’ can become a word in which librarians are men and women who come from any and many cultures, have nothing subservient about them in a global culture with less hierarchy and more freedom, and in which the materials that libraries contain evolve rapidly and disconcertingly. The library of the future, I think, will be a place that will succeed because it will not deliver what you predict, but that will surprise and confuse you as often as it reassures you. And more to the point, it will not be your mother’s or father’s or your own local library – it will be a library increasingly part of a global information environment, affecting that global environment, and in turn being impacted by it.

Salient features of global development that influence digital libraries
So, let us sketch briefly what are considered six salient features of the evolution of global society that will impact the library profession in the next decades.

(A). First and most important, the global information economy will be transformed not predominantly by iPhones or video games or mass digitization – which will all have significant impact—but most profoundly by the emergence of vast new numbers of the information savvy communicators, consumers, and producers in Asia, Africa, and South America. We will become accustomed to seeing that the handhelds and terminals of the globe now bring together billions of people in a conversation and information economy
that will be very different from the one that has been dominated by first world consumers – and especially by first world producers. Beyond the borders of nation-states, people will identify, through networks facilitated by IT, with communities of interest, scholarly or social or political or hobbies or … anything that takes their fancy.

The challenge for today’s libraries in this transformation is that we have historically been aligned with relatively small groups of our own, known users and hence must re-imagine ourselves to reach and serve numbers unimaginable just a decade ago. Even the biggest, most open and accessible of national libraries, for example, counted their customers in a year by the thousands and perhaps hundreds of thousands, numbers that a reasonably valuable website can now see in a single day. Even today, Google’s digitization projects are discouragingly US-centric, for all that other projects and other parties will balance their contribution soon enough. And we must learn to reach readers in new ways and via new technologies that matter to new generations whose needs are rapidly changing.

The author’s own institution, Yale University, has not long ago announced and begun to pursue a new strategic direction: that of making its brand globally well known in various ways: availability of numerous courses available online via YouTube; numerous lectures via iTunesU; all the way to designing a special logo for its digital presence: the idea is to reach as many eyeballs as possible, with good quality give-away information on a variety of tempting topics. The challenge for libraries is how most effectively to join this digital stampede while maintaining quality and content.

(B). Second, economic development globally will continue to evolve at lightning speed in tandem with information-economy fueled innovation. Economies of scale and of speed are being pursued all around us and will continue to accelerate. Corporate formation, de-formation, and re-formation will be part of that acceleration. It is a commonplace witticism in the U.S. today that new athletic stadiums benefiting from corporate sponsorship need to have the benefactor’s name no longer carved in stone but in a more flexible medium – like digital display – for conversion when the benefactor corporation merges, morphs, or collapses out of named existence. In another ten years, no one will understand why such impermanence seemed surprising and it will be instead a truism. The global economic downturn will accelerate all these tendencies soon enough – for rebuilding stability will require it.

The challenge here for libraries is that we believe in sustaining ourselves for the long term, as guarantors of the quality, accessibility, and reliability of information. When commercial enterprises were designed and managed for the long term, such a commitment to sustainability was unremarkable, but now it makes us outliers in an important way and forces us to examine the business plans and revenue streams on which we depend, to see how we can take advantage of new developments and at the same time to maintain our user and research driven missions.

(C). Third, the material conditions of life, in the wake of the revolutions of the last hundred years, will change as well, some very quickly, for better and for worse: for better when developments in the life sciences, healthcare delivery, and understanding of the human genome reach to peoples and classes that have been so far less impacted by the wellness revolution; for worse when the counter attacks of the mutant immune-resistant viruses challenge that wellness revolution, and when the impact on the global environment of many decades of increasing first-world consumption of resources and production of waste products reaches a scale at which we are no longer merely residents of the planet but in real terms must be its responsible stewards.

The challenge for libraries in the evolution of living standards will come in the pressure to identify and deliver in near real time even the most specialized information resources that can make a dramatic difference in the health of individuals and the sustainability of environments and communities. In the nineteenth and most of the twentieth century, information of that kind was naturally housed in hard covers and had a long shelf life – and libraries evolved to acquire, preserve, and deliver books and journals accordingly. The same information today belongs naturally in emerging digital forms, controlled, so far, by a welter of competing business models and arriving in a variety of formats. In such a moment, the value of the librarian as guide to a landscape in upheaval is clear. If once upon a time librarians could imagine themselves as thoughtful and helpful philosophers of the life of the mind, what will it be like now to work as if we are the metaphorical trauma surgeons and roadside paramedic technicians addressing needs far more immediate and far more vital?

(D). Fourth, English will triumph, at least for some decades or perhaps longer. This language currently enjoys a worldwide dominion, and that must be admitted no matter how we feel about the development. It has been observed that, among many other implications of this change, English now tends to be the ‘last’ language learned by many – ‘last’ in the sense that if your native language is Urdu or Xhosa or Cantonese, you will feel a need to learn at least one more language in order to improve your mobility and access to the world beyond your native borders. The first language you learn may well be regional or at least sub-imperial. But at some point in your education, the thought of learning English will occur to you and if you pursue that thought effectively, you will then find yourself so much more radically
empowered in the arts of communication that the value of learning yet another language will drop off sharply. No language learned after English can open as many doors as this one currently does. All this is familiar in India, of course, and India’s own history gives it a special advantage in acquiring mass familiarity with English, which provides both amazing opportunities AND special challenges in respecting and cherishing the many cultures of this land.

The rhetoric of dismay in the face of imperial languages is familiar to us all, but it is worth remembering that an imperial language can end by becoming everyone’s property. For precedent: Latin spread throughout the Western world as a conqueror’s tongue, but it became soon enough sub-imperial in its own right, modified and possessed by the conqueror’s subjects. The French today, for example, do not—when they speak the debased and corrupt form of Latin they prefer (the one they call French)—think that in doing so they are displaying their subjection to an alien conqueror! By most counts English is already today spoken in the world by more non-native speakers than native. That will change as more and more of the next generation of residents of India and China and Africa will be exposed to English earlier and earlier in their lives, to the point where it will not make sense to call an Argentinean brought up speaking Spanish at home with parents and English in school and on the net with acquaintances worldwide a ‘non-native’ speaker of the lingua franca.

The challenges for libraries here are multiple. On the one hand, some things will be easier, as it becomes easier to serve a broader range of readers with a narrower linguistic range of materials; but at the same time, we would not be librarians without a passionate commitment and respect for the acquisition and preservation of distinctive cultural materials. I predict that librarians will have an ever more visible role in the delicate and necessary business of preserving the communities and records of threatened languages.

(F). Fifth, inevitably drawing libraries into their wake, our universities are themselves in the first stages of a major era of transformation. What began as elite schools for the few have grown to become huge institutions for the many — and the very many more that wait outside for their opportunity. For the last half century or more, Europe and especially the United States defined the landscape for the explosive growth of research universities and at the same time their extensions for mass education. Now there is every reason to think that the future of universities will be driven from the emerging new economies. An August 2007 issue of Newsweek Magazine proclaimed, “Move over, Harvard and Yale,” noting that Asian universities, among others, are how hotly sought after by the new generation of global students. The economic shudders that the very richest universities have undergone in the last year are a reminder that strength has to be earned and re-earned, not merely inherited. By the way, we speak, sometimes glibly, of the globalization of various activities and institutions, such as universities. Globalization is a major theme these days, as many leaders, including our university presidents, have declared their institutions to be ‘global’. ‘Global’ is a term that means different things for different people and societies — some meanings are highly desirable and others predominantly negative — depending on where one sits and what one is doing. In terms of some of the kinds of projects that will be briefly described later, globalization and international cooperation is a Wonderful Thing — we are making common cause and sharing talents to achieve complicated and huge goals related to literary, freedom, and service. In other cases, the term symbolizes the cultural dominance and pushiness of the so-called developed world onto the ‘developing’ world, in a way that is can be insulting and insensitive. In any case, we can anticipate the huge challenges to institutional libraries that seek to collaborate widely, in order to provide information and support — in a sensitive and nuanced way—for faculty and students in global settings, because great universities and great libraries have been so often and so long associated with one another in many parts of the world. The structural changes in universities will carry with them changes for the libraries that inhabit them, that support them, that inspire them. For example, Yale’s recent attentiveness to global digital branding has pushed the Library more rapidly to digitize and make available its content; as the University’s researchers and students travel, study, and teach abroad, they demand brand new support; and as the University takes in an increasingly international population, the Library is examining its provision of services to an entirely new student profile and generation. The Yale university is, without question, concerned about where and how it will place in a global academic environment.
that many people could find; and once upon a time, the library represented in any given society the views and tastes of a male, majority culture. No more. Now the library is a place of hope and adventure for every sort of searcher after knowledge. It is a place where people and ideas meet and new ideas are ignited, making possible new relationships and new possibilities. Libraries have one important historical advantage – their presumptive association in many societies with ‘women’s work’. It is meant to be an advantage, because enterprises that manage to address the challenge of gender equity are often in a better position to be inclusive also across boundaries of class, nationality, ethnicity, and culture. For example, to recognize and advance the thinking and practice about the role of women in the worlds in which libraries participate – has benefits well beyond the immediate expectations of those participating in the struggle.

**Straw in the wind projects**

As we work in our libraries today, aiming to provide essential (rapidly changing) services for our own local users, and stewarding our own local collections, as well as those of our regional consortia and partnerships, let us turn from the daily challenges and opportunities that face us, to concrete examples of fresh, large-scale and creative thinking that can change not only libraries but also the societies in which we live. What do we see our contemporaries doing that can instruct and inspire us and help us think further about the pathway from present challenges to future successes? Just a few examples are offered here.

One leading indicator of important trends is the annual Gates Foundation ‘Access to Learning Award’, given now since 2000 and awarded each year at the annual meetings of the International Federation of Library Associations. (IFLA, for those of you who do not know it, is an organization with genuinely global reach and participation. Its annual meetings in the last few years have included sites in Bangkok, Jerusalem, Glasgow, Berlin, Buenos Aires, Oslo, Seoul, and Durban; its participants come from every corner of the globe; and its commitments and interests have kept it focused on the most globally relevant of issues and concerns.) The Gates Award has concentrated, important for libraries, on users and their access to knowledge.

A notable recent recipient of the award includes ReadGlobal, led by a truly enterprising and inspiring woman named Toni Neubauer. ReadGlobal is a foundation that began with pro bono work by adventure tourists in Nepal and has expanded to achieve remarkable success in planting functioning and self-sustaining libraries in tiny communities in Nepal, with the support and even cooperation of government and insurgent forces at the same time. The most important word there is ‘self-sustaining’, because every place where ReadGlobal works must first of all want a library, and must, secondly present a proposal that offers a realistic plan for long-term sustainability from local sources – and only then will the grant aid from outside be expended. One library supports itself by running an ambulance service; another makes furniture; and a third used a promising location in which to build a building twice the size needed, with half the space rented out for retail on competitive market terms – non-exploitative, but sufficient to generate a continuing revenue stream. (The incidental benefit of the ReadGlobal project is the development of human capital. The people, frequently women, who manage the furniture factory or the ambulance service as well as the library, develop skills and emerge as community leaders at an authentic and self-rewarding level.)

The Gates Award has gone similarly to projects in Australia, where the challenges of reaching underserved people are those of distance and a history of suppression of indigenous peoples, as well as to Denmark, to break down barriers that keep immigrant populations from full access to information resources for reasons of economic, social, and linguistic access. What those projects remind us is that in the different social setting of our emerging world, it’s not simple or easy or sufficient to build a traditional public library in every neighborhood and have the same impact that marvelous Carnegie project did in the United States a century ago.

Another set of projects that start by thinking about the readers and users comes out of several United Nations agencies (World Health, FAO, and UNEP) and under the rubrics of projects HINARI, AGORA, and OARE, they deliver environmental, health, and agricultural information presented in high-quality scientific journals and databases to governments, NGOs, academics, and even commercial sectors in developing countries worldwide. Similarly, the Iraq Virtual Science Library takes a partnership of first-world information producers and packages their best and most relevant output for the use of both citizens of Iraq and those outsiders working in the country for its stabilization and reconstruction. The eIFL.net is a not for profit organization that supports and advocates for the wide availability of electronic resources by library users in transitional and developing countries, through negotiations for electronic information resources on a multi-country consortial basis, support of national consortia, and global knowledge sharing and capacity building in areas such as open source and open access.

We at Yale Library participate actively and enthusiastically in several of these projects, but do so with our eyes open. Making information – that some pay a lot of money for – free to less wealthy countries can make sense as a business model, but it is hardly one that is guaranteed to scale or sustain itself. It is a transitional strategy, and I confess we do not yet know to what it will transition. Wherever possible, we serve as volunteers to projects like some of the above;
we raise funds for others; and, where we secure funding, we provide visible and necessary ongoing support through our collaborative efforts with librarians in several countries. We also take advantage of collaborative opportunities to create opportunities for fellowships, exchanges, and training in our home library and in our partners’ libraries.

The Bibliotheca Alexandrina in Egypt is another great venture, this one entirely Egyptian in origin and conception. We at Yale have been privileged to work with BibAlex, for example, on AMEEL, A Middle East Electronic Library, bringing together American and European libraries and technology with the extraordinary technological expertise of BibAlex in support of the vision of a common place of reading in the virtual world for all those who share in Arabic language and culture.

BibAlex, under Dr. Ismail Serageldin’s leadership, has also now partnered with the American Library of Congress on a World Digital Library, in which they are joined by IFLA and UNESCO, a number of the world’s national libraries and others with distinctive collections, such as Yale’s. The number of libraries in the partnership is currently about 35 and will grow rapidly. UNESCO hosted a formal project launch this spring in Paris. The WDL’s goal is to “make available on the Internet, free of charge and in multilingual format, significant primary materials from cultures around the world, including manuscripts, maps, rare books, musical scores, recordings, films, prints, photographs, architectural drawings, and other significant cultural materials. The objectives of the World Digital Library are to promote international and inter-cultural understanding and awareness, provide resources to educators, expand non-English and non-Western content on the Internet, and to contribute to scholarly research.”

The possibilities of such a project are easy to visualize, but what one would underline is that it involves the creation of ‘content’ (as we say nowadays) out of existing analog materials – the so-called ‘special collections’ – that have historically not been easily accessible even to users of traditional libraries. Although libraries have always been engaged in making books and other materials broadly accessible, there have always been acute limitations on what is possible, due to technologies of publication and reproduction, costs of publication, and the simple physical and economic facts of access to materials housed in a single location.

What we are seeing now is an explosion of access along multiple dimensions: access from places and for peoples hitherto unserved, access to materials hitherto more or less inaccessible, and access on a wide variety of new economic terms. Much more has been done than what is described here, and there is still much more that can be done by those with vision, energy, and ambition. We are working, each in our own ways, to building the universal digital library.

And at the same time: Have we thought about what would happen if there really were a universal library of material freely contributed and freely distributed worldwide? Many think that such a development would kill most existing libraries, or leave us to curate our physical collections while the digital action moved to a global resource – whether one run on Wiki-communal principles or one run on commercial-monopolist principles. I believe that in that case new kinds of libraries would evolve – collections of information organized and stewarded by particular groups and institutions for the benefits of their communities, ones that would grow up around the universal digital library. The challenge of organizing a vast collection to the point of usefulness to specific communities, no matter how smart our search engines and ‘bots may become, will remain and value will inhere in just that quintessential library function.

Let us imagine some of these new kinds of communities of research and practice, some in areas of energy/climate, others in health/medicine, others in public policy, for example, and still others in arts. The urgencies of personal and societal physical well-being are growing in concern and importance, and therefore in their ability to attract resources. We know that it is and will be possible for energy producers, government legislators and regulators, and research scientists and humanists to live inside a much tighter and faster communications loop in which the travel time from inquiry to discovery to application can be shortened appreciably. Here we may be at the boundaries of the possibilities for libraries as traditionally understood and approaching a point at which there is an entrepreneurial opportunity for somebody – not necessarily librarians, but ours for the taking if we but imagine it well enough and seize the time. This is one of our next enormous challenges as librarians.

Predictions

So one would like to close with a few predictions and a few actions steps we can and should take in this global library environment:

First, more information will be available to more people than ever before. Indeed, the challenges for users will be in finding what they want when there is too much information rather than too little.

Second, it is clear that financial support for projects without immediate and obvious and substantial commercial value will remain challenging, and therefore we will do best if we look for structures that are lightweight, sustainable, and fail-safe.

Third, we should expect that those who seek the broadest dissemination of the best information will be
At a political and societal cutting edge and should expect to be contested – and so we should build systems that are sufficiently international and network-based as to be resistant to attempted control and suppression. When global networked resources are attacked, as has happened recently, by partisans in a local struggle, we are all at risk if we do not think about how to make those systems strong and resistant, for the benefit of all.

And the fourth prediction? The unpredictable. Whatever we imagine may happen, yet something else will also happen. Being ready to see that and take advantage of it is an important form of organizational design.

**Action steps**

So if the journey of a thousand miles begins with the proverbial single step, what first step or steps should we be taking?

- We must start and finish digitizing our heritage collections – then start again, for it will be an iterative process. Google and other mass digitization projects attract criticism, much of it unjustified. The most important thing to keep in mind is not the digitization, however, but the social and economic steps necessary to make sure that good digitization does not become the enemy of better . . . or of the best. Preserving digitally and then making available by network the cultural heritage of many peoples and societies is an urgent task.

- Political progress must be made in freeing networks from regulation of every sort. First of all, open networks, uncensored, are the best guarantee of the future of human progress and freedom. Success must be sought in ways independent of governments and bureaucrats, and then it is not enough for innovation to be possible or demonstrated, but it must be known and thought about and digested and made as ordinary as a . . . cell phone, or personal computer, or whatever other technology of the last decades has become indispensable and obvious and ubiquitous.

- Even the most open and uncensored access depends on a technology infrastructure in the user’s home and homeland that is far from cheap. Deregulation of telecommunications control and delivery may be the single most empowering step that can be taken in a given country to ensure broad access to information. While much attention is given to pricing and funding models for highly specialized information, far more positive impact on the needs of may more underserved peoples could be secured for the same or fewer dollars in the telecommunications arena.

- Respecting and supporting the libraries, universities, and similar cultural institutions of the world is the best way we have of making sure that the common public good is served and served well in the new environment. It is at the non-profit and NGO level that the best partnerships and the best progress can be found.

In the end, however, it’s a twentieth century master who probably has the best advice for us all. I’m thinking of E.M. Forster, in the famous epigraph to his 1910 novel *Howards End*: “Only connect.” Librarians have always been great connectors, and we should not lower that power and that potential.