

**Report of the Commission on the
Future of the UC Berkeley Library**

October 2013

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I. The Future of the Research Library and the Case for Reinvestment

General Observations

Like the medieval churchman in *Notre Dame de Paris* who announced that “This will kill that; the book will kill the building,”¹ there are many today—both within and beyond the academy—who are prepared to pronounce that “the Internet will kill the brick and mortar university research library.” The rise of massive on-line libraries such as Google Books, the Internet Archive, and most recently the Digital Public Library of America, will no doubt lend greater momentum to such prognostications.² Because the Commission on the Future of the UC Berkeley Library, jointly sponsored by the Administration and the Academic Senate, was charged at the highest level “with holistically envisioning the desired future mission of the Library with a tentative horizon of twenty years and with the imperative of supporting Berkeley’s academic preeminence,” we have taken prognostication seriously. What value will a university research library add in the digital age? Our answer to this question is three-fold: 1) Human expertise; 2) Enabling infrastructure; and 3) Preservation and dissemination of knowledge for future generations.³

The emergence in the last half century of electronic storage, reproduction, retrieval, and dissemination of creative and scientific knowledge has changed how faculty and students access, create, and share our global intellectual inheritance.⁴ The pace of technological innovation in academic production and knowledge exchange shows no indication of slowing or stabilizing. At the leading edge of this new research and teaching frontier it is possible to imagine that within twenty years “b-books” fabricated from self-sustaining organic matter might well out-perform their print and e-book ancestors.⁵ Whatever form books take in the future, we can be certain that they will look different from how we imagine them today.

Late-twentieth century innovations in knowledge creation and dissemination also have wreaked havoc on a legal and regulatory infrastructure of both commercial and non-commercial information exchange that came into being in an era when the dominant modes of scholarly communication were face-to-face conversation and publication by printing with paper and ink. In the words of Pamela Samuelson, one of the foremost legal experts on this matter, “Copyright and Fair Use law are broken.”⁶ While it is difficult to predict how this legal and regulatory landscape will evolve, it is clear that libraries and librarians will continue to be faced with an increasingly complex mission of complying with ever-shifting legal

¹ Victor Hugo, *Notre Dame de Paris*, Book V, Chapter II.

² See, for example, David A. Bell, “The Bookless Library,” *The New Republic*, July 12, 2012.

³ Note on word usage: While the Commission was charged to report on the future of the “UC Berkeley Library,” this term typically refers to both the “University Library” (with its many separate subject specialty libraries) and the nine other separately administered and “affiliated” libraries located on the Berkeley campus (e.g., the Berkeley Law Library and the Ethnic Studies Library). For the purposes of this report, only those units directly funded and administered by the “University Library” were considered in-scope. When general remarks refer to the UC Berkeley Library, they are meant to be inclusive of the affiliated libraries as well.

⁴ Ross Housewright, Roger C. Schonfeld, Kate Wulfson, *Ithaka S+R US Faculty Survey 2012*, April 8, 2013 (Appendix H).

⁵ Halvorsen K, Wong WP. “Binary DNA nanostructures for Data Encryption,” *PLoS One* 2012; 7(9): e44212.

⁶ Pamela Samuelson, speech at *The University Library in the Twenty-First Century: A Symposium*, UC Berkeley, March 1, 2013. For further discussion see, Pamela Samuelson, et al., “Copyright Principles Project: Directions for Reform,” *Berkeley Technology Law Journal*, 1175, 1232 (2010).

mandates and their vexed relationship to the rapidly changing social norms and practices of students and faculty.

Librarians versus Search Engines

These opening observations lead us to conclude that the most important contribution of the Research University Library in the next twenty years will be to provide the increasingly sophisticated human expertise required to successfully navigate this rapidly shifting heterogeneous terrain. To ensure the academic preeminence of the UC Berkeley Library; to cope with the diversification of forms of knowledge production and “channels” of information; and to accommodate and the legal complexities and uncertainties of access, reproduction, and publication; the Library and its staff must develop ever-greater technical capacity, expertise, intellectual discernment, and flexibility.

Discoverability versus Availability

The explosion of scholarly resources available via the Internet in the past half-century—both proprietary and non-proprietary—is astonishing, and the rate of expansion is unlikely to slow. Availability, however, is not discoverability. The second principal finding of the Commission is that the general trends in scholarly research and student inquiry described above—the multiplication of information streams from both within and beyond the University Library and the expanding spectrum of media through which researchers and students conduct their academic activities—will require investment in the physical and digital infrastructure of the University Library.

Paradoxically, the massive and largely unregulated expansion of scholarly materials and information on the Internet has made it more difficult for scholars to locate authenticated materials and related services and to discover new resources. Expensive investments are underutilized as are cheaper and equally useable alternatives. For students, the challenge of finding appropriate materials in both print and e-forms and of distinguishing between reliable and non-reliable sources has become evermore difficult. Second to human expertise, investment in state-of-the-art, web-enabled research tools and services that facilitate faculty and student access to the vast scholarly and technical resources of our Library, our extramural partner libraries, and the global knowledge landscape, is critical to the academic preeminence of the Library and the University in general.

There is little doubt that the ways faculty researchers and students use the Library are changing as scholarly resources and course materials (from e-books and customized reading selections and problem sets to entire courses) become available online. The balance between using books and printed materials in physical libraries and using remote paging services or digital access is shifting at UC Berkeley and elsewhere.⁷ Complicating the changes is the pressing need of students for more clean, well-lighted, and quiet space for contemplation and study. Data on national trends and local practices lead us to conclude that there is wide disciplinary variation in needs for and uses of library spaces among students and faculty. However, we believe there is room for the Library to improve its allocation of physical spaces and menu of on-site services to meet the changing needs and practices of advanced researchers and undergraduates.

⁷ Ithaka S+R Report (Appendix H) and UC Berkeley Library Faculty and Student Surveys.

Access versus Control

The last general observation of the Commission pertains to the special mission of Research University Libraries to preserve human knowledge for future generations, while at the same time offering comprehensive access to knowledge in the present. The challenge of meeting faculty and student demands for comprehensive access to scholarly materials while University budgets are increasingly constrained and the costs of scholarly materials, especially scientific periodicals, are rising more rapidly than the cost of living or other market indices, has led commentators and some librarians to argue that Research University Libraries should shift ever-greater portions of their collections budgets from acquisition and conservation of material objects to ensuring access—whether through interlibrary loan services or digital subscriptions and site licensing agreements. Space constraints both on-site and off-site have intensified pressure on libraries to redeploy scarce resources from acquisitions to access. Some scholars have argued that “having access” to materials is more important than “owning” materials.⁸

The UC Berkeley Library has worked hard to forge collaborative collection agreements with the Libraries of the other nine UC campuses, the UC system-wide California Digital Library (CDL), the Stanford University Library, the HathiTrust and the Western Regional Storage Trust (WEST). These agreements, arguably unique in scale nationally, have reduced duplication in collections and saved large sums by leveraging scale in our negotiations with commercial publishers, vendors, and service providers.⁹ Berkeley should exploit new technology for access and preservation while ensuring that long-term access is not at risk. The latter sometimes requires “owning,” but can also be accomplished with consortial agreements, etc. The touchstone should be reliable and permanent access.

It is likely that further collection consolidation through digitization, particularly of periodicals, will be possible over the coming decades. Currently, however, digital infrastructure and the publishing industry are neither sufficiently reliable nor sustainable to warrant massive de-acquisition of print materials. As Ivy Anderson, Director of Collections of the California Digital Library explains,

We need to support ownership, not just access, because publishers are not reliable long-term stewards of scholarly information. Journals change hands, and publishers come and go. Even when perpetual rights are secured by contract, they are sometimes not fulfilled when journals move from one publisher to another or publishers alter their business models. It is only libraries that have a mission to ensure the persistence of the scholarly record, whether by managing content locally (via physical collections and digital preservation) or by arranging for third-party archiving services.¹⁰

At present “owning versus having access” is a delicate balance, and the devil is in details that need to be entrusted to expert hands. It is the Commission’s view that calls to cease or decrease developing print

⁸ Peter Norvig, speech at “The University Library in the Twenty-First Century: A Symposium,” UC Berkeley, March 1, 2013 (youtu.be/l2zaFix8Dfk).

⁹ Report to the Commission by the [California Digital Library](#), April 15, 2013 (see Appendix K).

¹⁰ Ivy Anderson, Director of Collections, California Digital Library.

collections in favor of “having access” are imprudent. Precipitous action could compromise the academic preeminence of our Library and our University in the present and put the future of the Library and our knowledge compact with future generations at unacceptable risk. The measure of the preeminence of research libraries in a twenty-year horizon will be *both* their capacity to continue to build great research collections and their ability to create access to the world of learning that lies beyond them.

The Case for Reinvestment

The UC Berkeley Library was founded with the University in 1868. From an initial collection of 1,000 volumes it has grown to include over 11 million volumes. Housed in several dozen physical libraries throughout the campus, the Library provided patrons 2.7 million physical items and 33 million article downloads in 2012. Globally, the Library has millions of exchanges with users through in-person visits, circulation requests, and online or phone conversations about research questions. Second only to the University’s homepage, the Library website is perhaps the most visible face of our University to the world and the most tangible demonstration of its core values: excellence and access.

The University and the Library cannot exist without each other. Because the Library—in both its physical and virtual forms—is ubiquitous in the everyday lives of faculty, students, administrative staff, scholarly researchers, and the general public worldwide, it is difficult to make a case for its role in sustaining the academic preeminence of the University except by imagining our University and our world without it. There is simply no great University without a great Library. The Library is the heart and circulatory system of our research and instructional mission; it is the essential pump that takes in the life-blood of learning and circulates it throughout the campus community and beyond our walls to our furthest public extremities; it makes research happen; it makes learning possible; it draws new learning back into the system only to generate more learning and send it out to circulate again.

The Commission has concluded that the centrality of the Library to the range of learning and research at Berkeley warrants a serious strategy of major reinvestment. The Library, aided by the campus administration and the Academic Senate, should devise a detailed execution plan for this reinvestment, along the lines of the Commission’s recommendations, coupled with a plan of both cost-saving and revenue-generating measures. To face the challenges of the next twenty years the Library should align its organizational structure and its institutional culture with the rapidly changing needs of faculty research and student learning. The campus community as a whole should assume the financial and intellectual responsibility of active partnership in this important endeavor. Because the health of the entire academic enterprise depends upon the Library, there should be no higher priority for campus investment and no greater responsibility for the Campus Administration and the Academic Senate than the effective stewardship of the Library.

II. Executive Summary

- Libraries—as both places and services—will be more, rather than less, critical to University research and teaching in the next twenty years.
- The Library should be among the new Chancellor’s highest fund raising priorities, especially technology upgrades, collection development, and improvement of the Moffitt Undergraduate Library.
- The annual campus investment in the Berkeley Library should become predictable and should reflect trends at peer institutions. The Library budget should be indexed to campus revenue or some other appropriate metric that can be monitored.
- To ensure that the UC Berkeley Library remains among the top university research libraries in the nation, campus will need to expend a one-time \$5M to remedy past shortfalls in collection funding by the state, and to increase the Library’s collection budget permanently by \$5M annually. Funding for other critical needs identified by the Commission will require approximately \$1.5 annually in addition.
- The number of Professional Librarians should be increased by 21 FTE and support staff should be increased to an FTE strength that the Library determines to be necessary to fulfill the recommendations of this report. This will require a total of about 465 FTE and an increase in staff budget of approximately \$6.5M.
- Reorganizing the Library staff into disciplinary ‘affinity groups’ will improve coordination of expertise and facilitate consultation and collaboration with faculty and students.
- Campus should institute a regular academic review process for the Library.
- Campus should advocate for the expansion of remote storage facilities, either on the existing NRLF site or some other site.
- The Library is the most prominent public face of the University both physically and virtually. We endorse the Library website redesign initiative and recommend developing additional portals for diverse user communities.
- The Moffitt Undergraduate Library should be transformed into a safe, secure, and attractive 24/7 study and research space.
- Consolidating and/or modifying some service delivery points, both in the Doe/Moffitt complex and in the freestanding Special Subject Libraries, could reduce costs, increase efficiency, and improve the quality of collection development and service delivery to both students and faculty.
- There should be closer collaboration between Educational Technology Services and the University Library to develop next-generation research and learning tools and services. Investment should be made in the development of ‘virtual carrel’ and digital ‘student learning portfolio’ tools for online curation of research and delivery of course materials.
- The Library should work with other campus units to develop a digital literacy curriculum available to all undergraduates. GSIs should play a central role in teaching digital literacy.
- Campus should invest in an office to help scholars disseminate their work broadly; to support and educate faculty and students about fair use, copyright, and open access; and to promote a more sustainable publishing ecosystem for scholarly communication.

III. Recommendations from the Commission's Subcommittees

A. Recommendations from the Subcommittee on Finance, Development, and Collections

The Commission comprehensively examined Library expenditures to understand how these expenditures have changed in the recent past and how they compare with corresponding expenditures at peer institutions. It was extraordinarily difficult, despite sincere efforts, for the Library and for the campus administration to provide reliable financial data. Seemingly straightforward requests for information generated inconsistent responses that required multiple iterations between the Commission and various campus administration and Library personnel to reconcile. This disconcerting fact is only partially explained by the transition of campus budgeting from an outdated system that relied on untenable notions of “permanent budget” to one that tracks all funds comprehensively. A particularly unfortunate corollary of this fact is that, for several years, the financial data reported to the Association of Research Libraries (ARL) did not accurately reflect the University’s investment in the Berkeley Library.

Investment Trends in the Berkeley Library

UC Berkeley Library expenditures (including those incurred for the Doe-Moffitt Library, the Subject Specialty Libraries, the Affiliated Libraries, and all stand-alone campus libraries) are broadly categorized as materials expenditures (acquisitions), professional salaries and wages, and other operating expenses. Table 1 shows the trend in materials expenditures since 2006¹¹:

2006 ¹²	2007	2008	2009	2010	2011	2012
17.3	18.6	19.5	17.1	17.3	19.3	19.8

Table 1: Materials expenditures at the UC Berkeley Library, in millions of dollars. Source: UCB (aggregating accounts 54211, 54213, 54214 and 54218 only)

By 2012, approximately 65% of the materials expenditures were incurred for serials, 25% for monographs, and 10% for rare books and other materials. Serials expenditures are overwhelmingly for electronic access.

Since 2001, the campus administration contributed \$11.5 annually to the University Library (which comprises Doe-Moffitt, the Subject Specialty Libraries, Bancroft and the East Asian Library) for acquisitions. The Library has augmented its acquisitions budget using endowment income, philanthropy, and contracts/grants. This includes a service contract with the Lawrence Berkeley National Laboratory (LBNL) to provide library materials to LBNL staff. That contract is substantially responsible for the increase in the acquisitions budget from 2010 to 2011 shown in Table 1. The average annual increase of 2.4% in the materials expenditures indicated in the table contrasts with the sharp price increase for both print and electronic materials reported by ARL members, illustrated in Figure 1. Figure 1 indicates, for example, that for the 25 years 1986-2011, library materials expenditures at ARL libraries increased at an average annual rate of 4.5%, driven primarily by the 5.7% average annual increase in serials expenditures.

¹¹ In this report, when relevant financial data are deemed sufficiently dependable and comparable, we consider figures back to 2003. Otherwise, we begin with figures for 2006.

¹² In this report, figures associated with a particular year always pertain to the fiscal year ending June 30th of that year (e.g., 2006 refers to the fiscal year ending June 30, 2006).

It is clear that the price increase of serials far outpaced all other library-related costs, thus substantially curtailing overall purchasing power.

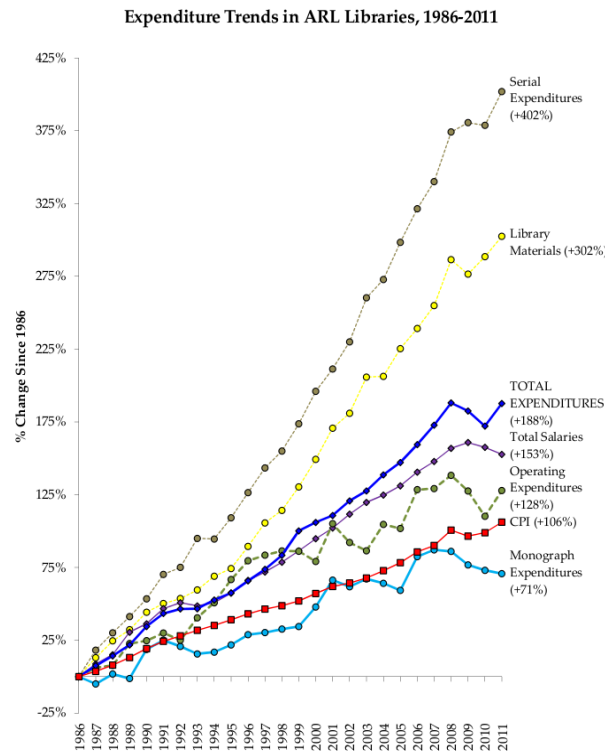


Figure 1: Expenditure trends in ARL libraries. Source: ARL Statistics (see Appendix I)

During the same period, the Berkeley Library’s expenditures for salaries and wages of academic, professional and temporary employees (excluding benefits, as stipulated by the ARL) evolved as shown in Table 2:

2006	2007	2008	2009	2010	2011	2012
28.3	29.8	31.5	31.8	29.0	28.2	27.9

Table 2: Salaries and wages (excluding benefits) at the Berkeley Library, in millions of dollars (source: UCB (aggregating expense categories 50XXX and 51XXX))

This trajectory of campus investment should be viewed in light of salary increases in represented titles and normal merit increases for academic titles (with academic titles accounting for about 35% of the Library salary expenditures in 2012). Escalating benefits expenses (which grew by about 48% from 2006 to 2012) are not included in the ARL calculations, yet they constitute a substantial liability of about \$9.5M in 2012. Table 2 reflects the loss (by attrition, without replacement) of 21 career librarians (reduction of 25%) and 122 career staff (reduction of 35%) since 2003. Of these 143 losses, 80 (including 19 librarians) have occurred since 2009. An expanded view of these data is shown in Table 3 below.

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Net
Centrally Funded Librarians	73.3	74.1	65.6	70.6	71.0	71.9	74.3	69.5	61.5	53.5	54.5	-20.8
Library Funded Librarians	7	7	5	4	4	4	4	5	5	7	5	
Centrally Funded Career Staff	288.1	279.5	244.8	242.0	247.6	251.8	244.5	213	203.8	201.5	193.9	-122.2
Library Funded Career Staff	63	58	45	39	40	46	45	46	37	41	35	
Non-Librarian Academics	3.5	11.5	10	11.5	11.5	12.5	6	9.5	9.5	7.5	7	3.5
Temporary Librarians (grants)	9	9	11	17	11	16	12	12	7	15	14	5
Temporary Staff (part time)	21	17	29	29	17	24	12	21	31	37	49	28
Total	464.9	456.1	410.4	413.1	402.1	426.2	397.8	376.0	354.8	362.5	358.4	-106.5

Table 3: Main Library staff count (source: HR BAIRS Earnings Distribution Detail)

The preceding table represents staff counts in the Main Library (excluding Affiliated Libraries, as staff counts at Affiliated Libraries have remained essentially unchanged between 2003 and 2013). The table reveals that the Main Library relies increasingly on temporary (part-time) staff to mitigate the loss of permanent staff. This temporary staff does not include the approximately 600 students who work part-time as assistants in the library. In its deliberations on staff counts, the Commission adopted an “all-funds” approach, in which the figures (listed here separately as either centrally-funded or unit-funded) were considered holistically. This is in keeping with the transition from the old central funding model of the university to a more flexible and practical model that tracks the significant resources generated and expended locally by units such as the libraries.

Finally, the total Berkeley Library expenditures (tabulated both excluding and including benefits) in the years 2006 to 2012 are shown in Table 4, where they are compared to the figures the Library reported to the ARL:

Year	2006	2007	2008	2009	2010	2011	2012
ARL	56.2	53.2	56.7	52.0	50.1	48.3	53.7
Actual (w/o benefits)	51.6	54.7	57.8	55.3	50.9	51.2	51.3
Actual (w/ benefits)	58.0	61.5	65.2	63.0	58.6	60.1	60.8

Table 4: Total expenditures for the Berkeley Library without and with benefits, in millions of dollars. Source: ARL Statistics and UCB

The difference between the actual expenditures figures (excluding benefits) and those reported to the ARL appears to be due to the legacy budgeting system used at Berkeley until recently, which did not accurately capture the expenditures incurred by the totality of library activities on campus.

The Berkeley Library budget is drawn from four different sources: direct campus support, endowment income, contracts/grants, and revenue from services. Direct campus support constitutes the largest component of the Library budget, \$43.5M in the fiscal year 2012. Of these funds, \$28.6M were from general (19900) funds, \$11.5M were from non-resident tuition, \$1.6M were from professional degree fees generated by the Law School and used to support the Law Library, \$0.8M were funds generated by indirect cost recovery, and the remaining \$1M were from a variety of other sources. The trajectory of central campus funding for the Library, shown in Table 5, reflects a decrease of approximately 7% in nominal dollars since 2009.

2006	2007	2008	2009	2010	2011	2012
43.4	46.0	46.7	46.9	43.9	43.8	43.5

Table 5: Central campus funding for the Berkeley Library. Source: UCB (Note: these figures may be distorted by transfers made by the Library to other units or by capital projects)

The Library generates approximately 15-17% of its total budget from philanthropy. This figure, which includes both gifts and endowment earnings, compares favorably to peer institutions. Library philanthropy is almost exclusively generated by the Library's own development arm, without significant leadership from University Relations. The library needs of undergraduates have not been given sufficient priority; they present a substantial potential draw for philanthropy.

The Competitive Landscape

The Association of Research Libraries (ARL) publishes an annual Library Investment Index that is intended to quantify the investment of each ARL member library in five categories: volumes held, volumes added, current serials, total library expenditures, and total professional plus support staff. While no single number can adequately capture the scope of the investment in a major academic institution, the index does provide useful information about relative changes in investment level among ARL libraries. According to this measure, the Berkeley Library dropped from 3rd place in 2003 to 8th place in 2011 (rankings for 2012 are currently unavailable). If Berkeley had correctly reported the expenditure figures,

it would have dropped to 7th place.¹³ An even more dramatic drop occurred between 2003 and 2011 in materials expenditures relative to our peers (see Table 6). Taking into account the corrected figure in Table 1, Berkeley still would have dropped to 10th place in acquisitions expenditures.

ARL Library Materials Expenditures					
2003		2011		Increase	
1	Harvard	\$26,534,161	1 Harvard*	\$31,223,654	18%
2	Yale	\$24,965,321	2 Yale*	\$30,838,698	24%
3	Michigan	\$19,235,775	3 Toronto	\$26,935,915	68%
4	UC Berkeley	\$16,291,361	4 Columbia*	\$26,655,182	77%
5	Toronto	\$16,060,860	5 Michigan*	\$24,744,107	29%
6	Penn State	\$15,407,047	6 Princeton	\$23,505,803	83%
7	Columbia	\$15,054,531	7 NYU	\$21,818,363	73%
8	Cornell	\$13,582,562	8 Alberta	\$20,424,599	119%
9	Princeton	\$12,866,304	9 USC	\$20,080,312	67%
10	UT Austin	\$12,688,944	10 Chicago	\$18,680,779	48%
11	UCLA	\$12,672,517	11 Penn State	\$18,336,588	19%
12	NYU	\$12,645,171	12 Duke*	\$18,112,394	44%
13	Chicago	\$12,605,544	13 Texas A&M	\$17,923,344	41%
14	Duke	\$12,545,843	14 UC Berkeley	\$17,661,578	8%
15	Indiana	\$12,520,640	15 UT Austin	\$17,441,272	37%

*UC Berkeley Library Peer Institution

Source: Association of Research Libraries

Table 6: Changes in Library materials expenditures between 2003 and 2011

The preceding financial evidence leads safely to the conclusion that, during the past decade, the campus has under-invested in the Library relative to its peers (both private and public). The Library has worked to mitigate the negative effects of underinvestment through a combination of cuts, improved efficiencies, and increased reliance on alternative sources of funding. The Commission has not been able to detect any overarching strategic thinking behind this under-investment in the Library. Rather, facing a series of serious financial challenges, the University simply reduced its total funding of the Library in real dollars (and even in nominal dollars, i.e., without adjusting for inflation) and left the Library to manage the resulting financial crisis in staffing and acquisitions itself.

In our interactions with University Librarians at peer institutions, we have received the consistent message that library expenditures for staffing and acquisitions are increasing much faster than inflation, not remaining flat or decreasing, a message evident in Figure 1. Even the most enthusiastic proponents of electronic access and digital technologies among peer University Librarians were quick to argue that their libraries must continue to increase their investments in both monograph acquisitions and expert staffing, while the challenges and opportunities offered by electronic media are being deliberated among universities, trade organizations, and private enterprises. Electronic resources may eventually lead to significant overall savings on library staff and materials expenditures, but have not yet. For the near future, at least, the effect will continue to be quite the opposite.

¹³ UCLA, which would rank 6th, appears to include benefits in their total expenditure; hence it is reasonable to project that Berkeley would rank ahead of UCLA in 6th place in an equitable comparison.

Assessing the Health of the Library

The Berkeley Library has a multi-faceted mission, serving different constituencies in distinct ways. It is clear to the Commission that undergraduate students use the Library primarily for study space and, therefore, are intensely interested in longer library hours, a more accommodating social environment, and improved technology for wireless access and printing. The graduate students (now the largest group of campus users of monographs and bound periodicals) with whom the Commission interacted are interested in both ease of access and the quality of the collection. The faculty appear to be of two minds, depending on the specific area of their research. Some, including many in the natural sciences, are content with electronic access and see no direct use for traditional print media; while others, including many in the humanities, are much more sensitive to ease of access and quality of both the print and electronic collection. Inevitably, the impact of under-investment in the Library on its patrons—undergraduates, graduate students, and faculty—is witnessed differently depending on the length of one's experience: faculty tend to take a decidedly longer view than students.

The Commission has identified tangible metrics for ongoing assessment of the quality of the Berkeley Library. While no list of such metrics can be either complete or without detractors, we believe that the following indicators are important and should be regularly tracked to diagnose the health of the Library:

1. The ARL Investment Index. Notwithstanding disclaimers provided above, the ARL Investment Index has both practical and reputational importance. The Berkeley Library needs to refine its own understanding of the comparability of these figures in order to better characterize its relative outlays.
2. Gate figures. This metric provides a gross yet crucial measure of overall physical Library use.
3. Data on electronic access.
4. Monograph/bound-periodical check-outs.
5. Library-sponsored instruction. The instructional role of the Library is critical to certain disciplines. There is quantitative evidence that this role has been diminished by the severe reduction in the number of professional librarians documented above.
6. Surveys of user satisfaction. These surveys should be conducted frequently and be statistically sound to reflect the opinions of the campus patrons.
7. Timeliness of delivery services. This metric is relevant to the material delivered from NRLF and by interlibrary loan.

During our deliberations, we had full access to data on Metrics 1, 4 and 5 (although, as already argued, data on Metric 1 were initially inaccurate), limited access to data on Metrics 2 and 7, access to anecdotally rich but statistically unreliable or difficult-to-interpret data on Metric 6, and virtually no data on Metric 3.

The Commission has concluded that the centrality of the Library to the range of learning and research at Berkeley warrants major reinvestment. The Library, aided by the campus administration and the Academic Senate, should be charged with devising a detailed plan for this reinvestment, coupled with a plan to reduce costs and generate revenue. The broad financial parameters of such a plan can be determined by considering what is needed in staffing, collections, maintenance, and new projects to make

the Berkeley Library thrive in its central role; and by considering how our peer libraries are operating with greater success.

Recommendations

- The Administration should take immediate action to reverse a decade of declining library resources and restore the Library budget to a level commensurate with the stature of the institution and consistent with its mandate to achieve comprehensive academic excellence.

The Commission attempted to generate a reliable fact-based estimate of the level of reinvestment needed to restore the Library's position among the elite academic libraries of the nation. As a baseline for this exercise, we considered the University of Michigan Library, since the two institutions are similar academically and as public universities. Still, differences between the two institutions necessitated the introduction of a number of assumptions in order to yield meaningful comparisons.

For materials expenditures, unlike Berkeley, Michigan has increased its budget (on a 6-year average) at an annual rate of approximately 4% and is currently spending about \$5M more annually than Berkeley. After subtracting all FTEs associated with the University of Michigan Press and educational technology services (which report to the Library at Michigan but not at Berkeley), Michigan appears to have 70 more staff FTE than Berkeley. A complicating factor in estimating the cost of these FTE is that Michigan appears to be compensating staff in the Librarian titles at a rate that is, on average, 15% lower than that of Berkeley, which reflects the relative cost of living in the two communities.

Based on its analysis, which has been subjected to the scrutiny of both the campus administration and the University Librarian at Michigan (a member of this Commission), the Commission recommends (1) *a minimum \$5M increase in the acquisitions budget effective with the 2013-14 budget and* (2) *an increase in total Library FTE (excluding student employees) from the estimated 396 in 2013-14 to 465*. The acquisitions increase is practically equal to the inflation-based increment in funding needed to restore the buying power of the Library lost since 2006. Likewise, the FTE increase would restore a substantial percentage of the 21 career librarians lost since 2003 and add corresponding professional support staff in proportion (typically, 3-4 support staff are needed for each career librarian, as implied by comparing the first and third rows in Table 3).

The FTE increase should take place over two fiscal years and the Library should allocate the FTE strategically among its various job titles. The FTE increase should not be used to offset other initiatives recommended by the Commission (e.g., 24/7 access to Moffitt, enhanced involvement of the campus in electronic dissemination and copyright matters, etc.). This increased campus commitment should be accompanied by appropriate controls on expenditures and the Library should propose appropriate ways to measure and report its impact. Based on average salary figures from the Library budget, the current cost for the additional FTEs (including benefits) is approximately \$6.5M, assuming that the Library will hire staff with a reasonable mix of titles.

The proposed financial commitments for acquisitions and FTEs should not be viewed as “static,” since, as already argued, inflation (for acquisitions) and increases in salary and benefits (for FTEs) can quickly erode the buying and hiring power of the Library.

- Reinvestment in materials should focus principally on annual budgeting going forward rather than on remediation. However, to ensure that the most serious needs are met, the University should make available the equivalent of the recommended annual increase in materials expenditure only (\$5M) in the first or second year of this plan for remedial acquisitions and for any personnel immediately necessary for the additional selection and processing. The Library, in consultation with the Academic Senate Library Committee and campus academic units, should develop a plan to invest these one-time resources to maximize the quality of the collection.
- The annual campus investment in the Berkeley Library should become predictable and reflect trends at peer institutions. Campus must develop a predictable financial model to ensure that the Library can continue to sustain a level of excellence and access commensurate with our academic mission.

Financial stability can be attained, at least in part, by making the campus investment to the Library a fixed percentage of each of the various campus revenue sources, or via a more complex formula that pegs provisional budgets to specific indices for personnel costs, weighted inflation rates for all categories of acquisitions, etc. The contribution of the Berkeley Library to all undergraduates, graduate students, faculty members, and academic units warrants drawing revenue from a broad and balanced range of sources. In particular, a higher contribution from indirect cost contributions may be appropriate, since the Library (in its many forms) is a powerful indirect contributor to Berkeley research, and the return on long-term investment (in research productivity, reputation, and grants) is substantial. Likewise, significant contributions to the Library should also be made from both in-state and out-of-state tuition, given the heavy use of Library resources by all students.

- The Library should figure prominently in the Chancellor’s fund-raising priorities, not only for the Moffitt project, but also for materials in the great campus libraries and for other initiatives that appeal to prospective donors. University Relations should work with the Berkeley Library development team to secure major gifts and create other library-related philanthropic initiatives. Increased campus investment in the Library (recommended above) could be leveraged with prospective donors by asking them collectively to match the new University contributions.
- The Library should engage proactively in initiatives to generate additional efficiencies and revenues from service and commercial contracts. For example:
 - a. Service contracts to provide digital content to federal laboratories in California (e.g., Lawrence Livermore National Laboratory, Sandia National Laboratories, U.S. Salinity Laboratory) following the model it has successfully developed with the Lawrence Berkeley National Laboratory.

- b. Commercial contracts to develop student-centered library-café clusters for large undergraduate-oriented subject specialty libraries, such as Bioscience and Engineering, following the successful FSM Cafe-Moffitt model.
- The Library must continue to save money and leverage expenditure, while developing innovative ways to ensure that all resources are managed prudently. In pursuing the recommendations of the Subcommittee on Scholarly Dissemination, the Library should ensure that open access and other initiatives are designed to promote eventual savings. The Library should explore plans to consolidate or modify specialized spaces and collections in consultation with all the stakeholders, and should assess the savings that would accrue from standardizing lending periods, library hours, paging, and technology. *The Library must develop accounting practices that are comprehensible, transparent, and comparable from year to year.*
- The Library and the Administration should develop infrastructure that allows the seven performance metrics (especially metrics 2, 3, and 6) to be monitored systematically over long periods of time. Once the Library budget is reset as in our recommendations above, the metrics should be used to assess the impact of the augmented budget on Library operations and on the satisfaction of the campus constituencies. Also, the Academic Senate through its Library Committee and its Committee on Academic Planning and Resource Allocation should enhance its advising and oversight of the Library operations, both on programmatic and budgetary fronts.

B. Report from the Subcommittee on Staffing and Services

The charge of this subcommittee was to review and assess the space usage, staffing levels, and services of more than two dozen libraries and service points that report directly to the Library administration. In preparing this section, the Commission benefited from input from the Librarians Association of the University of California, Berkeley (LAUC-B) and the library staff generally. Two internal reports produced by Library Staff, which propose significant changes to the configuration of Subject Specialty Libraries (SSL) and Doe/Moffitt Services and a major reconfiguration of the organization of Library staff, prompted faculty inquiry and were therefore a particular focus of this Subcommittee: “Re-Envisioning the Library: Library Service Models Self-Study Team Report” (April 18, 2012)¹⁴ and “Affinity Groups by Disciplines” (November 6, 2012).¹⁵

Since Babylonian times, libraries have housed physical collections of textual inscriptions for the purposes of preserving human learning and making it accessible. The twentieth-century research library in its physical configuration was a direct descendent of these ancient institutions. On university campuses, ‘main libraries’ were meant to be the primary repositories of books and other materials (manuscripts, periodicals, documents, etc.) and offered the convenience of a central point of access to users. Over time, specialized collections and separate free-standing subject specialty libraries grew in order to support more specialized collection expertise and to provide greater convenience of access to specialized user communities. Special Subject Libraries offered greater visibility and legibility in an increasingly complex intellectual landscape. The alignment of spaces, collections and library expertise with user communities was a signature of the great twentieth-century university research libraries. At the same time, ‘main libraries’ came increasingly to serve as central service points for access to the entire collection and as general reading rooms for students, faculty and visiting researchers.

By the 1980s the UC Berkeley University Library had expanded its physical campus presence and evolved into a rich intellectual ecology of roughly 19 separate physical libraries (Doe/Moffitt, the Bancroft Library, the East Asian Library, and 15 free-standing Subject Specialty Libraries) and currently maintains over two dozen separate service points for specialized users.¹⁶ The degree of budgetary and administrative autonomy of these separate libraries and service points and the local variations in customized services enriches the research and teaching landscape and at the same time creates daunting complexity.

In parallel with these institutional developments, the explosion of printed and digital materials, as well as the rapid expansion of electronically enabled remote access to services and tools (i.e. paging, electronic delivery, interlibrary loan) have added complexity to the traditional library functions of collection, preservation, and user services. These developments have opened new pathways to knowledge, they have disrupted the disciplinary boundaries between specialized collections, and they have rendered boundaries

¹⁴ Available at http://www.lib.berkeley.edu/AboutLibrary/re_envision.html

¹⁵ Available from the University Librarian’s office on request.

¹⁶ In addition, and out-of-scope for the purposes of this report, are the nine Affiliated Libraries on campus. These libraries report directly to various deans on campus and are not part of the University Library’s structure, though their holdings are included in Berkeley’s statistics reported to UCOP and. A list of campus libraries appears in Appendix D.

more fluid. While some user communities continue to engage in site-specific specialized research, others view the Library primarily as a remote service provider of access to on-line resources or remote paging (via Baker, the Library's fee-based document delivery service).¹⁷

This campus library configuration—what one might call the ‘heliocentric model’—came under unsustainable pressure in the second half of the twentieth century, both at Berkeley and at large. As the quantity of printed materials expanded exponentially in the late-twentieth century, physical campus library buildings could no longer hold comprehensive on-site collections at either ‘main libraries’ or even in an on-campus ‘heliocentric’ configuration. The Northern Regional Library Facility (NRLF), completed in 1982, was created in response to these pressures for the northern University of California campuses, and today stores about one third of the volumes held by UC Berkeley (4.2M of a total of about 11M volumes)¹⁸

The University community as a whole—faculty, students, and staff, as well as extra-mural Library users—have yet to fully understand how librarians track developments in academic research and patterns of interaction between physical collections; how access to digital resources and user practices have evolved; and the extent of the administrative and financial challenges these changes have created for the Library.

All of these developments have occurred in an era of progressive public disinvestment in the University as a whole, coupled with an explosion in costs of scholarly publications, particularly for scientific journals.¹⁹ This has made it exceptionally challenging for the campus to disaggregate financial constraints from transformations in user needs and practices that have their sources in other developments—technological innovations and intellectual trends.

The Commission has reviewed data on user practices and consulted extensively with faculty, students, and staff to try to understand which changes proposed by the Library in the two reports mentioned above are responses to under-resourcing due to budgetary constraints, and which are creative responses to an evolving research and learning landscape. As a result of these investigations, we are able to make the following observations and recommendations:

Staffing

In an era in which modes of knowledge dissemination are becoming more complex, especially with the diversification of forms of scholarly dissemination and platforms for the acquisition, preservation, and

¹⁷ Ross Housewright, Roger C. Schonfeld, Kate Wulfson, *Ithaka S+R US Faculty Survey 2012*, April 8, 2013.

¹⁸ Total number of items on campus at UCB: 22,241,420; Total number of items at NRLF owned by UCB: 7,744,202; Total number of items at NRLF: 9,157,240 (the actual number of barcoded items at NRLF as of 6/30/12 was 5,972,837; 3,184,403 are added to account for campus vs. NRLF differences in counting certain formats, primarily pictorial items, microfiche, and pamphlets). The total number of volumes on campus at UCB: 7,335,575; the total number of volumes at NRLF owned by UCB: 4,236,669; The total number of volumes at NRLF: 5,573,852. (See appendix G)

¹⁹ See the Association of Research Libraries Journal Costs chart (Appendix I).

delivery of library materials—books, periodicals, documents and databases—the need for human expertise in collection development, conservation and reference services will continue to increase. The most important investment the campus should make in its Library is in human resources.

We recommend that central campus funding to the Library be increased to restore at least twenty professional librarian positions in order meet the knowledge challenges of the twenty-first century. As noted above in Section A, Library FTE has been reduced by 21 career librarians and 122 career staff since 2003. Achieved largely through haphazard attrition, the reduction has resulted in numerous ad hoc curtailment strategies (reduction and consolidation of subject specialist portfolios, deferral of “non-urgent” cataloging and preservation needs, reduction in hours of operation at Library buildings). While all these cuts have negatively affected Library users, we conclude that the two with the worst impacts on user communities and the quality and stature of the Library as a whole are:

1. Reducing staff in the Professional Librarian series (which compromises both research services and instructional support, as well as high quality collection development), and
2. Reducing the Libraries’ hours of operations.

Comparisons of staffing levels at peer institutions (e.g. Harvard and Michigan), while difficult to measure with precision, nonetheless lead us to conclude with certainty that it is urgent to reinstate a minimum of 21 librarian positions.

The staffing challenges that the Library faces are not simply a question of restoring the number of FTE to some target. The Library, by its own careful assessment, believes—and we concur in part—that it could deploy its staff more effectively, and that it needs to develop a coherent strategy to retrain, retain, and recruit staff with the skills and expertise required for the future. We believe that in the new knowledge landscape, the campus will benefit most from reinvestment in librarians with higher levels of expertise, who are capable of navigating a rapidly changing technological and intellectual terrain.

There is a serious morale problem in the Library (with many common features to staff stress across campus in the past few years) but more resources alone will not cure it. The reduction of Library staff largely through attrition, rather than coherent planning by senior management, has contributed significantly to a deterioration of morale: We are pleased to note that the Library is reorganizing its staff strategically. Though still in the planning and consultation phases, the ‘affinity group’ approach seems promising; it might align the Library more closely with campus academic units and users’ needs.

Aligning the organization chart of the Library with the academic units will also help to resolve a second critical problem: the increasing isolation of an over-burdened Library staff and the collapse of effective mechanisms of consultation between Library staff and, especially, faculty users. We recommend that the Library work with campus leaders—Deans, Department Chairs, Departmental Library Committees, and the Academic Senate Library Committee—to establish effective, regular mechanisms of consultation and to develop a staff culture that adapts quickly to users’ needs.

We recommend that faculty startup agreements mention that, in addition to the funds provided directly to new hires, the campus allocates Library funds to expand its collections to help meet the research needs of faculty.

More importantly, in order to ensure that the Library's priorities remain aligned with the needs and priorities of the academic units, we recommend that the Library be reviewed by an external academic panel every 8-10 years, just as other academic units are.

Restoring the staffing levels of our professional librarians will also make it possible for these librarians to have the time and capacity to perform higher level services in collection development, data analytics, instruction, and user consultation, to ensure that the Library's collections and services are optimally attuned to developments in research, study, and knowledge production. Ideally, professional librarians should be in a dynamic partnership with faculty to fulfill the University's instructional and research mission. Creating this capacity is the most critical ingredient in this proposal to renew Berkeley's leadership among national research libraries.

Spaces and Services

Having carefully reviewed the 'Re-envisioning' Report issued by the Library in April of 2012, along with its supporting data, and having consulted extensively with a wide range of campus constituencies over the past nine months, the Commission concludes that some consolidation of Subject Specialty Libraries or service points, and modification of some services at those over two dozen service points, may be appropriate. We recommend that the University Librarian consult with the academic leadership and faculty in the subjects served by the Subject Specialty Libraries to better identify where and how space usage can be improved for user communities and service delivery better attuned to the needs of users. The deans, in collaboration with the Library administration, should present recommendations to campus by the end of the 2013-2014 academic year.

We also recommend reorganizing to improve the academic legibility and usage of the Doe and Moffitt Libraries. Specifically, we hope that the Library staff can allocate staff and organize reference collections to restore Doe to its past glory as an intellectual community rather than, in the words of one Department Chair, "a massive study hall and central circulation point." For example, Humanities and Social Sciences affinity groups within Doe could be mobilized to create visible and accessible reference service points to better serve the research and instruction needs of users and to provide a sense of place and community along the lines of a Subject Specialty Library.

We recommend that circulation and operating services in the Doe Library be reconfigured so that the second-floor reading rooms (i.e. the North and Heyns Rooms) can be opened to the campus community and the public at large on Saturdays from 9:00 am to 5:00 pm and on Sundays from 10:00 am to 5:00 pm, with circulation service provided by paging rather than direct stack access during these hours. This change (likely to be revenue-neutral or even cost-saving) would greatly enhance both access and sense of community for faculty and students, and better serve the working public and visiting researchers.

In conjunction with this change, we believe it is time to transform the Moffitt Undergraduate Library into a 24/7 student learning and research center that no longer offers separate circulation services (except undergraduate course reserves maintained at current operating hours). We urge campus to remodel Moffitt into a future-oriented space for study and investigation, optimally resourced with state-of-the art technology and the human expertise required by students in the twenty-first century.²⁰

The Commission received the following endorsement of its campus space recommendations, expressed as follows:

SB 176- The Student Commission on the Future of the Library Bill passed unanimously through the ASUC senate, with all 25 co-sponsors of senators and Executives. This bill addressed many of the similar issues as the Faculty Commission, as well as the need for a 24 hour quiet space, 24 hour cafe, technology investment in digital interfaces and tablets, as well as more outlets and printing access on campus. The students will support the sacrifices of some libraries closing down their circulation as long as the space is available for students to study, and those books will be available elsewhere.²¹

We believe that the campus needs to advocate and take leadership at the UC system-wide level to immediately begin planning for the needed expansion of the NRLF either on the current site or through the addition of a new site.

Finally, we believe that variations in loan periods and operating hours among the free-standing specialized libraries is less than optimal and that the Library should standardize policies across the libraries within the campus system where possible. This would save costs, and improve service.

²⁰ <http://moffitt.berkeley.edu/>

²¹ See Appendix L.

C. Subcommittee on Technological Futures ***Bringing Users and Resources Together***

It would be futile and counter-productive to try to predict the future technological needs of the Library with a great degree of specificity, especially since they will be shaped not just by technical developments but by changes in the legal environment, in scholarly practice, in the delivery of educational services, and in scholarly publishing, among other things—all of which are likely to look very different in a decade. Accordingly, we have kept our recommendations broad, focusing on programmatic goals rather than specific implementations.

In the digital world, the Library is a gateway to increasingly variegated and distributed resources. These include the collections, print and digital, that are curated by the Library itself; the other UC collections; numerous licensed databases and resources; and a welter of third-party sites and resources, variously academic, institutional, governmental and commercial. One thing we can say with certainty is that this mediating role will become more daunting as the ensemble of resources grows in number, size, and complexity, even as it imposes a greater burden on users' skills and knowledge. Accordingly, the challenge has to be addressed at two levels: enhancing users' information literacy and facilitating navigation and access. Achieving these goals obviously requires coordinating the efforts of a number of organizations and programs, but we envision that the Library will play the central role in each of them.

Information Literacy Initiative

All the user constituencies of the Library will need new skills to navigate the increasingly complex and extended landscape of scholarly and instructional resources. At the undergraduate level, numerous studies confirm what is already anecdotally apparent to most faculty and librarians: Students lack skills needed to use digital resources for research. While as “digital natives” they are reasonably adept at finding information for personal purposes, those skills often aren't sufficient to accomplish their academic work effectively.²² As one recent study observed, “[Students] tended to overuse Google and misuse scholarly databases. They preferred simple database searches to other methods of discovery, but generally exhibited “a lack of understanding of search logic” that often foiled their attempts to find good sources...”²³ (Indeed, they're not even very good at using Google for these purposes; Google's own research scientists have lamented that students are unable to take advantage of the resources that are readily available to those who know how to find them and have initiated MOOCs to address the problem.²⁴) Students have difficulty navigating electronic resources and journals (as demonstrated by the Library's Web Advisory Group user tests²⁵), as well as in evaluating the credibility and relevance of the sources they come upon.

²² Alison J. Head and Michael B. Eisenberg, "Lessons Learned: How College Students Seek Information in the Digital Age," Project Information Literacy First Year Report with Student Survey Findings, University of Washington's Information School, December 1, 2009.

²³ Carie Windham, *Getting Past Google: Perspectives on Information Literacy from the Millennial Mind*, Educause Learning Initiative Report, 2006.

²⁴ Steve Kolwich, "Searching for Better Research Habits," *Inside Higher Education*, 2010.

²⁵ UC Berkeley Library Web Services Review Team Final Report, April 2013 (Appendix M)

Graduate students and faculty face digital challenges as well, including keeping track of a rapidly changing catalog of resources, understanding quickly evolving issues of legal rights and forms of publication, and mastering new tools that integrate research and scholarship, bibliography, and publication preparation. At every level, these difficulties are likely to become more marked.

At present, these needs are met in a patchy way. Subject specialist librarians visit undergraduate classes; according to the Library's survey data and the anecdotes from the ASUC leaders the Commission met, students find this quite helpful. But the increasing burden on subject specialists has required a reduction in even the current schedule of class visits. While these visits should certainly be encouraged and supported, these are not skills that students can acquire in the course of a single session or from tips provided on a web page. Librarians are eager to help, but students are not disposed to consult them: In an extensive national survey by Head and Eisenberg, only 30 percent of upper-level undergraduates report consulting a librarian for any reason in course-related research.²⁶

A Digital Literacy Initiative

In order to coordinate and expand these activities, we propose establishing an independent campus initiative in Digital Literacy, housed in the Library but with cross-unit collaboration with Educational Technology Services (ETS), Information Services and Technology (IST), and the Center for Teaching and Learning. The initiative will be tasked with providing training and support in digital literacy and traditional research tools. Ideally, the initiative would have dedicated resources, with enough staff support to coordinate programs across campus lines.

- A digital literacy program should address needs at all levels: elementary, advanced undergraduate, graduate, and faculty.
- Elementary instruction might be provided via large-scale unit training in sciences and humanities. Like reading and composition, it should be conducted “across the curriculum,” bearing in mind that research skills (including the ability to make effective use of research) are invariably a form of situated knowledge: while they are ultimately generalizable, they are best acquired in a specific intellectual or disciplinary context, in the course of socialization into what some have called an epistemic culture.
- Major-level instruction is to be provided in elementary major courses or gateway courses.
- Graduate-level instruction should be an element of proseminars, with dedicated GSR's or GSI's to facilitate digital research skills and digital bibliography. We envision an important role for graduate students at all levels of the initiative, since many of them are highly conversant and comfortable with the technology and up-to-date on the available resources.
- A faculty-level program should support research, digital bibliography, and rights management.

Information Access: The Library and Content Organization

Given the many forms of scholarly information and their highly variable provenance, the Library cannot describe and control these sources with the same methods used for print collections owned and stored by

²⁶ Head & Eisenberg, 2009.

the Library itself. Currently, the Library website serves as both the electronic catalog of the library's own collection and as a portal to restricted and public resources, including primary source databases, bibliographic resources, visual collections, and so on. It currently offers very little support for finding and navigating the specialized digital resources scholars must use. The Library is developing a new, better integrated website. The commission supports the redesign, which will aid navigation and support special subject guides managed by the specialist librarians.

However, even this new web design is only an intermediate step: It does not address some of the critical issues surrounding research in the digital age, nor will it accommodate some of the current search technologies that could potentially revolutionize the Library's role in scholarly research on campus. Classical website structures with hierarchical forms and search capacities that mirror cataloging practices cannot function as the central portal for scholars who are now accustomed to flexible and creative search tools provided by Google and others.

We encourage the Library to develop a second-generation web portal that would allow scholars and students to search both the curated and publicly accessible collections with tools that would point to relevant resources based on the search parameters and the user's search history. This recommendation was strongly supported by the DeCal student reports that were completed as the final assignment for their "shadow Commission" of this Commission. As we see in the commercial digital world, recommendation software, tailored search results, and customized advertising rely on statistics and algorithms that attempt to identify promising paths. We see such an approach being integrated into the library catalog search process so that scholars could take best advantage of the vast array of resources now accessible through the Library. Early versions of this exist in some scholarly web sites, for example, PhilPapers displays the references from footnotes so that one may follow those trails. We imagine a more comprehensive vision that would mine many resources and display them in ways that suggest paths, rather than simply produce endless lists of specific forms of information. This is not a new idea,²⁷ and we respect that there exist challenges (e.g., privacy issues); however, we think the Library must begin to move in this direction.

This project would be a multi-disciplinary one involving user interface design, data visualization, conceptual architecture, and advanced search/recommendation technologies. We also suggest that the Library portal could become a new space for the sharing of information among scholars if annotation software were implemented within the Library's collections. This would allow scholars to see (if so desired) comments, data, and suggestions from other readers of the digital collections, or to see aggregates of user data that might aid in following research paths.

Virtual Carrels for Research

The University is moving toward integrated, cloud-based systems for students and scholars with the implementation of Research Hub and the planned Access system for students. These systems will, it is hoped, provide a secure space where a variety of information sources can be brought together, including information from student systems, libraries, etc., all authenticated with CalNet IDs. While this may not be viable yet given the pace of Internet technology development and the proliferation of new tools, we do

²⁷ See Andreas Geyer-Schulz, Andreas Neumann, and Anke Thede, "An architecture for behavior-based library recommender systems," *ITAL*, 22 (2003).

think an integrated webpage would facilitate interaction with the Library and we encourage ETS and the Library to develop what we call a “virtual carrel” for patrons of the library.

Such a carrel would allow researchers to maintain and quickly access search histories, library records, and such, but also store in one virtual space favorite resources — links to databases, current important bibliographic sources, dictionaries, and so on. Given the fluid nature of research in this era, we believe it is vital for scholars to have a consistent “home” for their work in the library (virtual or otherwise) since they often work in fragmented and unpredictable ways. The virtual library is currently set up as a place one goes to find a specific resource, analogous to the old days of going to the library. This does not support the more eclectic and dispersed research we do on our computers and the Library can take the lead in providing an integrated space for work done in its collections.

Virtual Student Learning Portfolios for Instruction

On-line book lending transmitted to e-tablets by libraries has arrived. Educational Technology Services should work with the Library to design the student portfolios of the future. In twenty years—perhaps sooner—licensing agreements and fair use issue may evolve to make possible the online delivery of course material (i.e. course reserves) for students. The UC Berkeley Library should be at the forefront of this development.²⁸

Collaboration on portfolios for student-created work has begun with the new Director of ETS. Course reserves (instructor-selected and student-consumed rather than student-created work) have been supported by the Library on bSpace. The ease of the move to Canvas will be a fair test of Library planning.

A Note on Printing

To many people, the “digital” of “digital library” is a synonym for “paperless.” True, not many people imagine that it would be either feasible or desirable to reduce or eliminate the Library’s extensive printed holdings, either on- or offsite. But digital resources themselves still generate a need for printing. As Sellen & Harper observed in their influential book *The Myth of the Paperless Office*,²⁹ paper has affordances that make it a superior medium for reading and annotating; it is light, highly portable, easily manipulated, and supports reading of multiple documents, among other things. The Library should assume, therefore, that people will need to print articles, class papers, and other documents. In discussions with the Commission, students complained that printing is currently inconvenient and expensive: Users can’t send documents to printers from their own laptops or tablets. While printer networking has been a famously thorny problem since the invention of Ethernet and the laser printer, there are commercial solutions and it should be a goal of the Library to ensure that anyone can print anything from anywhere.

A few university libraries, such as at McGill, Michigan and Michigan State, have also acquired print-on-demand (POD) machines like the Xerox Espresso, which can print, collate, cover and bind digitized books, such as out-of-print titles. Berkeley is a large contributor to the current UC Reprints service.³⁰ We

²⁸ Anthony W. Marks, “E-Books and Democracy,” *New York Times*, May 1, 2013.

²⁹ Abigail J. Sellen and Richard H.R. Harper, *The Myth of the Paperless Office*, MIT Press, 2003.

³⁰ <http://uc.bookprep.com/>

make no recommendation as to whether the Library should expand their role in producing POD works or arrange to acquire them via third parties, but we note that they are increasingly attractive to students and faculty.

D. Subcommittee on Scholarly Dissemination *Making it Easy for UCB Scholarship to be Found and Read, Forever*

In response to the Commission’s charge to “holistically envision” the desired future of the library . . . with the imperative of supporting Berkeley’s academic preeminence,” this section presents a vision of the Library’s role in the dissemination of knowledge. In particular, it focuses on how the Library can help to disseminate—and preserve for purposes of future dissemination—scholarship produced by Berkeley faculty, students, and researchers. Dissemination and preservation presuppose acquisition of content and rights, so copyright and licensing of scholarly work is central to this discussion. The mechanisms and costs of publication, acquisition, preservation, and dissemination are inextricably linked.

The fundamental mission of the University of California is to “discover knowledge and to disseminate it to its students and to society at large.”³¹ Libraries have traditionally played a larger role in knowledge discovery than in dissemination. They have collected and curated scholarly materials, and guided faculty and students in their use of information resources disseminated primarily by publishers of monographs and serials. For university libraries, this has often meant buying publications that contain scholarship generated by the universities’ own faculty members. Libraries must acquire most scholarship from publishers and not from faculty members directly because in many cases scholars have not retained rights to their own work. Publishers who have acquired copyrights from scholars can object to unauthorized dissemination of that scholarship by the scholars themselves and by their university libraries.

This traditional model has long facilitated the exchange of knowledge among scholars and students affiliated with institutions that can afford to buy books and subscriptions. This model has also provided revenues to publishers, who have performed or coordinated a variety of dissemination functions—including manuscript selection, peer-review, editing, printing, marketing, and distribution of physical copies. The traditional model has done less to facilitate access by the general public and by scholars not affiliated with well-funded institutions in developed countries. And within its established domain, the traditional academic publishing model has become unsustainable. Even the wealthiest university libraries struggle to acquire books and subscriptions.³² The cost of serials (especially science, technology, and medical journals³³) is rising more rapidly than any other component of library expenses, with no limit in

³¹ University of California’s Mission, <http://www.universityofcalifornia.edu/aboutuc/mission.html>.

³² See, e.g., Harvard Library Faculty Advisory Council, “Faculty Advisory Council Memorandum on Journal Pricing” (April 17, 2012), available at <http://isites.harvard.edu/icb/icb.do?keyword=k77982&tabgroupid=icb.tabgroup143448> (“[M]ajor periodical subscriptions, especially to electronic journals published by historically key providers, cannot be sustained: continuing these subscriptions on their current footing is financially untenable. Doing so would seriously erode collection efforts in many other areas, already compromised.”)

³³ See Stephen Bosch & Kittie Henderson, “Coping with the Terrible Twins: Periodicals Price Survey 2012,” *Library Journal* (April 30, 2012), available at <http://lj.libraryjournal.com/2012/04/funding/coping-with-the-terrible-twins-periodicals-price-survey-2012/> (“While state and library budgets continue to decrease, research indicates that serials prices are increasing—at a rate that also seems to be escalating Prices for science, technology, and medical (STM) serials remain the highest, compared with prices for serials in other subjects . . .”).

sight.³⁴ For university libraries to continue to provide faculty and students with access to up-to-date research, the traditional publishing model must change.

Incremental—and in some cases dramatic—changes are already underway. In many disciplines, the Internet makes it possible to decouple dissemination of knowledge from the production and distribution of physical copies of books and journals. In light of this potential, scholars, research institutions, funding agencies, and publishers are experimenting with new approaches to dissemination that allow scholarship to be accessed more broadly—and often much less expensively—than in the conventional model.

For example, many scholars now retain copyright in their scholarship and grant publishers only non-exclusive publication rights (or exclusive rights that are time-limited). This allows scholars to disseminate their own work via the Internet and other means, and to authorize others (including university libraries) to do so without seeking permission from publishers. The faculties of several leading universities have gone beyond this piecemeal approach, coordinating and facilitating access by adopting policies that give blanket authorization (typically subject to opt-out) to their universities to disseminate their scholarly articles to the public.³⁵ Several public and private funding agencies make open dissemination of research results a condition of grant funding³⁶ (and broader policies of this type are now under consideration at the federal and state levels).³⁷ In some fields, established publishers are themselves experimenting with new business models that allow for more open access than the traditional approach.³⁸

³⁴ See Association of Research Libraries, “Expenditure Trends in ARL Libraries, 1986-2011,” available at <http://arl.nonprofitsoapbox.com/storage/documents/expenditure-trends.pdf>; Association of Research Libraries, “Monograph & Serial Costs in ARL Libraries, 1986-2011,” available at <http://www.arl.org/storage/documents/monograph-serial-costs.pdf>. (See Appendix I.)

³⁵ Adopters include Harvard, MIT, Princeton, Duke, the University of Kansas. In May, 2012, the UCSF Academic Senate adopted the UCSF Open Access Policy, described at <http://www.library.ucsf.edu/help/scholpub/oapolicy>. The system-wide Academic Senate adopted an Open Access Policy for the University of California in July 2013, available online at http://osc.universityofcalifornia.edu/openaccesspolicy/OpenAccess_adopted_072413.pdf.

³⁶ The most prominent of these is the National Institutes of Health policy. See “Revised Policy on Enhancing Public Access to Archived Publications Resulting from NIH-Funded Research,” available at <http://grants.nih.gov/grants/guide/notice-files/NOT-OD-08-033.html>. Prominent private funders with open access policies include the Howard Hughes Medical Institute and Wellcome Trust. A list of public and private funding organizations with open access policies is maintained by the SHERPA/JULIET. See <http://www.sherpa.ac.uk/juliet/index.php?la=en&mode=simple&page=browse>. A list of open access mandates adopted by governments, private funders, universities, and other research institutions is maintained by ROARMAP. See <http://roarmap.eprints.org/>.

³⁷ See, e.g., Office of Science and Technology Policy, “Expanding Public Access to the Results of Federally Funded Research” (Feb. 22, 2013), available at <http://www.whitehouse.gov/blog/2013/02/22/expanding-public-access-results-federally-funded-research>; Federal Access to Science and Technology Research Act of 2013, available at <http://lofgren.house.gov/images/stories/pdf/2013%2002%2014%20doyle%20lofgren%20yoder%20fastr%20final.pdf>; California Taxpayer Access to Publicly Funded Research Act (Assembly Bill 609), available at http://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=201320140AB609.

³⁸ See, e.g., SpringerOpen, <http://www.springeropen.com/>; Wiley Open Access, <http://olabout.wiley.com/WileyCDA/Section/id-410895.html>; Taylor & Francis Open Access Program, <http://journalauthors.tandf.co.uk/preparation/OpenAccess.asp>.

Although changes are underway in many disciplines and in many quarters of the scholarly dissemination ecosystem, there are substantial obstacles—ranging from disciplinary differences to entrenched interests and business practices and deeply engrained faculty culture. In many fields, opportunities to publish in peer-reviewed open access outlets remain limited, expensive, or otherwise unattractive. The Library can play an important role in facilitating the transition to a more sustainable system of scholarly dissemination. The Library—indeed, all university libraries—will benefit directly from such changes. And these changes may improve scholarship by making results more easily discoverable, increasing the rate at which new knowledge is created, magnifying its benefit to the general public, and ensuring its permanent preservation.

In sum, university libraries can make it easier for scholars to take advantage of existing opportunities for broad dissemination of knowledge, create new opportunities, and contribute to a more sustainable publishing ecosystem that will benefit scholars, libraries, and the public at large. While we are heartened by the July 2013 adoption of an open-access policy by the systemwide Academic Senate of the University of California, there is more that can and should be done. Below we recommend several specific things the UC Berkeley Library should do to help spread the knowledge discovered at Berkeley throughout society.

Recommendations

The UC Berkeley Library—in collaboration with other important stakeholders here on campus and beyond—should expand its efforts to make it easier for scholars to disseminate their discoveries broadly. Over time, such efforts may contribute to a more sustainable publishing ecosystem that costs libraries less and functions better for dissemination, discovery, and preservation of knowledge.

We recommend that the UC Berkeley Library:

- Establish an office responsible for facilitating dissemination of Berkeley scholarship. This responsibility is currently a small part of the large portfolio of the Electronic Resources Librarian. Instead, it should be the primary responsibility of a dedicated librarian and additional personnel who would oversee current activities and the expanded efforts described below. One attractive staffing model would also include a part-time faculty director, a librarian, a legal expert (perhaps a lawyer who could also serve some of the Library’s other intellectual property needs), and student fellows.³⁹ Based on this staffing model and estimates of the costs associated with the functions described below (many of which would be undertaken in collaboration with CDL and other partners), we recommend an annual budget of \$500,000 for this office.
- Make CDL’s existing eScholarship repository more useful as a platform for disseminating UCB scholarship and preserving it in perpetuity. To this end, the Library should:

³⁹ For one peer comparison, consider the Harvard Office for Scholarly Communication (“OSC”), <http://byron.hul.harvard.edu/about>. The OSC is led by a faculty director, supported by library and technical staff and by a team of “Open Access Fellows” who help faculty make deposits into Harvard’s Digital Access to Scholarship repository. See <http://byron.hul.harvard.edu/content/oa-fellows>.

- Develop educational materials, deploy technological tools, and increase direct assistance to UCB scholars to facilitate and increase use of the eScholarship repository.
 - Coordinate with CDL to ensure that UCB scholarship is well-curated and discoverable by, for example, creating specialized portals into eScholarship that highlight work of UCB scholars and units and ensuring that eScholarship interoperates with other platforms the UCB scholars use to disseminate their research.
 - Develop and follow preservation practices that ensure that scholarship in the repository is not inadvertently lost due to format obsolescence, disaster, or system failure.⁴⁰
 - Increase coordination between CDL and our Academic Personnel infrastructure to facilitate the deposit of faculty scholarship into the eScholarship repository (i.e. without duplicating effort already devoted to entering bibliographic information into APBears or the Berkeley Research website).
- Devote additional resources to developing, publicizing, and providing ongoing support for alternative publishing platforms, including open access online journals edited by UCB scholars.
 - Devote additional resources to digitizing and preserving existing UCB scholarship, through both independent and collaborative digitization efforts.⁴¹
 - Develop mechanisms to ensure that faculty members can afford to publish in open-access outlets that charge (reasonable) fees, building on our experience with the Berkeley Research Impact Initiative.⁴²
 - Coordinate with CDL and legal staff to provide advice and tools to help UCB authors retain, manage, and understand their copyrights and/or the rights necessary (including fair use rights, where applicable) to publicly disseminate their own scholarship and to authorize the University to do so on their behalf. This includes helping scholars clear rights held by third parties, e.g., those who control copyright or access to content that is embedded in UCB scholarship. It would also be useful to provide an archive into which UCB scholars could deposit publishing agreements for purposes of keeping track of and managing their rights. Critical assistance to UCB scholars may

⁴⁰ We expect that infrastructure to support such practices may be developed and maintained in collaboration with partners. We understand that CDL is participating in a relatively new effort, the Digital Preservation Network, with a mission to “ensure that the complete scholarly record is preserved for future generations.” “It will be a long-term preservation solution shared collectively across the academy that [will] protect local and consortia preservation efforts against all types of catastrophic failure.” <http://www.dpn.org/about/>

⁴¹ Current collaborative digitization efforts include the HathiTrust Digital Library, in which the University of California is participating. See <http://www.hathitrust.org/community>.

⁴² <http://www.lib.berkeley.edu/brii/>.

also include helping faculty understand and comply with the system-wide faculty open access policy that has recently been adopted by UC.⁴³

- Provide advice, tools, and encouragement to help UCB scholars and their successors reclaim copyrights that have already been transferred to publishers by taking advantage of contractual reversionary clauses and/or statutory termination of transfer rights. Note that this will be easier to accomplish if the Library helps scholars keep track of their publication agreements as suggested above.
- Provide information about publisher practices, including whether publishers insist on transfer of copyright, whether their publication agreements allow authors to disseminate and preserve their own scholarship and authorize the university to do so (and what fee, if any, is required for this authorization), the prices they charge for copies and electronic access, etc.
- Explore opportunities to collaborate with UC Press on alternatives to traditional publishing models.

⁴³ http://osc.universityofcalifornia.edu/openaccesspolicy/OpenAccess_adopted_072413.pdf

IV. Next Steps for Campus

- The commission requests an exit meeting with the chancellor, the EVCP, the Chair of the Academic Senate, and relevant campus leaders (Catherine Koshland, Vice Provost for Teaching, Learning, Academic Planning, and Facilities; John Wilton, Vice Chancellor for Administration & Finance; and campus CFO) at soonest convenience.
- Schedule budget renegotiation for AY 2013-14 in Fall 2013.
- AY 2013-14 implementation of a campus process for determining modification of and/or consolidation of subject specialty libraries and service points.
- AY 2013-14 implementation of reorganization of Library staff into affinity groups.
- AY 2013-14 planning and implementation of Doe and Moffitt Libraries modification.
- Initiate NRLF expansion advocacy and planning process.
- Establish a Library office of scholarly communication in AY 2013-15.
- In collaboration with Vice Provost for Teaching, Learning, Academic Planning, and Facilities, develop digital literacy curriculum for implementation in AY 2014-15.
- Implement Library Academic Review Process beginning in 2021.
- Establish Campus/Senate progress assessment mechanism of Commission recommendations starting in AY 2014-2015.

V. Appendices

Appendix A: The Commission Charge

Appendix B: The Commission Membership

Appendix C: The Commission's Approach and Activities

Appendix D: A List of the UC Berkeley Libraries

Appendix E: Organization of the UC Berkeley Libraries

Appendix F: Map of the UC Berkeley Libraries

Appendix G: UC Berkeley Library Statistics

Appendix H: Ithaka Report on Print Retention

Appendix I: Expenditure Trends in ARL Libraries

Appendix J: "The Past, Present, and Future of Scholarly Publishing" by Michael Eisen

Appendix K: California Digital Library Report to the Commission: Added Value of CDL Licensing

Appendix L: An ASUC Bill In Support of the Student Agenda for the Faculty Commission on the Future of the Library

Appendix M: Final Report of the Web Services Review Team