

SCHOLARLY COMMUNICATION: ACADEMIC VALUES AND SUSTAINABLE MODELS

A proposal to the Andrew W. Mellon Foundation for a Planning Grant
Center for Studies in Higher Education, University of California, Berkeley
C. Judson King, Principal Investigator

Proposed Project Duration: May 15, 2005 – March 15, 2006 (10 months)

Brief Statement of Project Purpose, Nature, Plan and Scope

The Center for Studies in Higher Education (CSHE), University of California, Berkeley, and its research partners, propose to conduct an exploratory comparative and descriptive analysis (the planning study) of the interplay between academic value and reward systems and scholarly communication.

The motivation for the proposed project is to provide a nuanced and insightful analysis of the roles that universities and faculty do and can play in the resolution of the perceived “crisis in scholarly communication.” Many of those involved in supporting new publishing and communication ventures see “the willingness of the faculty to change” as a key barrier to providing more cost-effective publishing models in an environment of escalating costs and constrained resources. The current valued and effective system of faculty recognition and reward has been built upon traditional means of print publication, and most faculty may not perceive much of a crisis. Indeed, many faculty may perceive significant career risks associated with putting their work in the newer and different means of electronic dissemination that are emerging. The products of the proposed research will provide a clearer understanding of how the realities of academic advancement systems within an institution, and value and recognition systems within a discipline, help or hinder the varied proposed solutions to the scholarly communication crisis.

Specifically, the planning study will produce and compare five disciplinary based case studies. The disciplines have been chosen (1) on the bases of having differing publishing needs, traditions, and degrees of involvement with innovative publishing methods, and (2) because members of the research team have the essential background and means to define rapidly the research and publishing attributes of these diverse disciplines. We intend that these case studies will help elucidate the multiple institutional and individual variables that determine discipline-specific faculty research and publishing practices.

At the completion of the planning study, the analyses will be disseminated widely to those in the UC system, other research universities, and in the private sector who are grappling with developing sustainable scholarly communication models. The planning study will also enable the research team to define a more comprehensive, larger ultimate project. As it is currently envisioned, our goal for that project will be to understand better how the progress of scholarship in an electronic age is simultaneously influenced by academic value and reward systems, scholarly traditions, viable business models, and the coexistence of traditional and innovative publishing approaches. The ultimate project will include a wider spectrum of disciplines for comparison. We recognize that support from the Mellon Foundation for the planning study carries no implication for its support of the foreseen ultimate project. Completion of this planning study, however, will strengthen CSHE's position for defining and gaining funding of the ultimate study from whatever source. As well, it will be most helpful to the Center in interesting a variety of funding entities in its wider agenda.

Rationale and Background

As costs to libraries for journals and books have increased markedly, as library budgets have not been enabled to rise correspondingly, and as the marketing practices of larger actors in the publishing industry have evolved, there has been much interest in launching new methods of publication. These new methods include, but are not limited to, pre-print and post-print servers, open-access and/or author-pays models, “sustainable monograph” concepts, subscription-based electronic journals, institutional repositories, extended personal web pages, and multi-media publications.

Those involved in the creation and/or promotion of these new publishing models observe that the willingness of faculty researchers to embrace them has been a major limitation to their wide-spread adoption. Faculty researchers must first perceive that a transition to new publication models has a direct personal benefit. That is, any different means of publication must result in their work gaining recognition at least as effectively as traditional means. Therefore, any sustainable means of publication must combine that perception with (1) recognition and appreciation within the academic reward system and disciplinary value systems and (2) business models that are sustainable for all concerned in the publication chain.¹

Universities have major roles, as both consumers and providers of information, and as employers of a large fraction of researchers, in shaping what the future of scholarly communication looks like. They have, by and large, not exercised the influential role that they could have. What can major universities and/or organizations of universities, with the possible additional involvement of professional societies and publishers, do to address the situation? What steps, if any, should they take to facilitate faculty adoption of new modes of publication and dissemination? How can an understanding of current faculty behavior and motivations influence their actions? Do different disciplines require different solutions and infrastructures to support innovations?

These questions are pertinent to the current interest in open-access models since universities and/or taxpayers would presumably be among the primary payers for open-access systems. The structure and financing of open-access systems (e.g., institutional repositories) or other university-based systems interact in complex ways with the overall budgeting and financing of universities. They interact both with operating budgets and with infrastructure and investment that are needed to institute uses of new methodologies. Other important factors bearing on university roles are intellectual property ownership, anti-trust laws, private-sector mass digitization, and the increasing abilities to search through large collections of information, as evidenced by the recent Google Scholar initiative. It must also be recognized that analyses of and answers to these major issues will vary among disciplines, because of variability in research methodology, publication needs, and financial circumstances.

The Berkeley campus (UCB) and the University of California (UC) have many distinguished scholars across the academic spectrum of disciplinary fields, thereby providing a reservoir of expertise relevant to all aspects of the multifaceted issue of universities' roles in the future of scholarly communication. The Center for Studies in Higher Education has assembled a Steering Committee of such scholars and relevant academic administrators to define and discuss the more pressing questions facing universities and faculty, and to identify potentially fruitful research agendas. Our collective knowledge and discussions have identified a number of issues that are central to assessing which avenues for future scholarly communication will be most effective and are most likely to be viable and succeed. They include:

¹ A plausible scenario, over time, is that faculty as users of information must first perceive the value of any different means of publication for gaining recognition of their work more effectively and efficiently. Then, given a sense that the means of publication is at least as effective for recognition and appreciation within the academic reward system and the value system of their discipline, they would make the switch to the new publication medium.

- (1) the discipline-specific attributes of publication and communication that will most effectively and efficiently advance scholarship and knowledge in a field;
- (2) the incentives for, and barriers to, faculty and other researchers publishing their own work by newly available but non-traditional methods;
- (3) the lack of clear road maps for faculty on how career goals are well-served by experimenting with the newer forms of publication;
- (4) the lack of both clarity or agreement about how to finance both new and traditional forms of scholarly communication while serving the needs of all parties – researchers as authors, users, and reviewers, universities, libraries, and publishers;
- (5) the potential conflict between rapidly advancing opportunities for electronic publishing and academic values that have yet to (or may never) adapt to the new opportunities; and
- (6) the costs of the infrastructures needed to support the emergence of new electronically supported research methods and publication models.

The proposed research project described below is focused on ascertaining how faculty award and value systems interact with these larger issues. There is also some discussion of how this planning study will feed into the subsequent, larger ultimate project, mentioned above.

Goals and Methods

Overall Goals

Our primary goal for the planning study is to provide a preliminary descriptive analysis and understanding of the academic value systems associated with scholarly publication and communication, including means of communication extending beyond archival publication:

- Within a discipline. (For example, what do scholars perceive as needed for them to make a name for themselves?) It is recognized that there are different needs and value systems for different disciplinary areas, that different disciplines are in different stages of incorporating electronic communication, and that some disciplines, e.g., architecture, have products other than text.
- Within a university. (For example, what are the value systems of the academic promotion and advancement processes, as perceived by different actors in those processes?)

In addition to positioning us to define a larger, ultimate project, the descriptive case-study approach will begin to elucidate the ways in which faculty do or do not perceive electronic means and other new capabilities as enhancing the (1) quality, effectiveness, and immediacy of communication of a scholar's research output to peers and users, (2) recognition of that research, and (3) efficiency and effectiveness of progress of scholarship as a whole.

The disciplinary case studies should enable a more precise identification of the factors associated with academic and disciplinary value systems that influence viability and financial sustainability of different methods of scholarly communication for various participants in the publication/communication system, including: authors (producers), researchers (consumers), libraries, and publishers.

Methods

Case Studies

In the planning study, we propose to develop five disciplinary case studies as the primary vehicle for this pilot. These case studies will provide an opportunity to analyze discipline-specific variation and vagaries of faculty value and reward systems, and how those systems influence and are influenced by research methods, publishing models, financial sustainability, available technical infrastructures, intellectual property traditions, and academic culture. Because codifying this information may result in a sharp contrast to the existing anecdotal conventional wisdom about disciplinary habits, assumptions, and behaviors, a significant task will be the development of a case study structure to facilitate understanding and comparison of these data. At the end of this pilot, we will have (1) refined an appropriate case study methodology, including the development of a useful case study structure, (2) identified additional disciplinary fields for study, and (3) provided a basis for definition of an ultimate project.

The case studies will be based on three interrelated viewpoints: faculty authors, university administrators and committee members involved in the academic advancement process, and academic "publishers." Our goal will be to determine points of intersection among these players' views, as well as points of divergence.

Disciplines. The disciplinary areas selected for the case studies are representative of the diversity found in academic research culture. They are chosen because they differ in publication and communication needs, in current publishing traditions and models, and in the extent to which they have moved, or are moving, to newer vehicles for publication. As well, we have good access to authors, editors and publishers with comprehensive knowledge in these fields, some of whom are members of our Steering Committee (see below). The disciplines include both traditionally bounded and newer, interdisciplinary fields, and cut across a spectrum of social sciences, humanities, natural sciences and professions. Among them, they encompass a number of new publishing vehicles, as well as traditional print publication in both monograph and journal forms.

The five disciplinary areas chosen for initial study are:

- **Economics and Law** (i.e., the intersection of these fields). This is a newer, interdisciplinary field that applies the concepts and tools of economics to analyze problems in law. It has made significant use of newer publication vehicles. "More and more areas of law have been brought under the lens of economics; more and more of the increasingly technical tools of economics - itself a field undergoing rapid growth and increased specialization - have been brought to bear on the law. An immense and difficult body of monographic and journal scholarship is the result." (Encyclopedia of Law and Economics) It is an area of expertise for members of our Steering Committee.
- **English-Language Literature.** This is a traditional monograph-oriented field that has been heavily impacted by the monograph crisis. It strongly reflects the tension between movement away from the print monograph, on the one hand, and the academic value and reward system, on the other hand. It is also a field in which new electronically enabled research methodologies have emerged (e.g., text encoding).
- **Biostatistics.** This is a journal-oriented scientific field that mixes core research in the mathematical sciences with applied material that spans clinical medicine, public health, and the biological sciences. Recent publication concerns focus not only on publication lags and wide

access to material, but also on the need to accommodate publication of original data (for example in genomics) and software code to allow reproducibility of statistical analyses. Various innovative publication models are being independently developed in the field.

- **Chemical Engineering.** This is a science/engineering field which has traditionally relied almost exclusively upon traditional print journal publication. It has not yet adapted much away from traditional journal publication, but a few electronic journals have appeared on the scene. Also, this is a field where the time lag of traditional peer-reviewed publication has become more and more a handicap.
- **Anthropology.** This is a wide-ranging discipline encompassing four distinct sub-disciplines (cultural, linguistic, biological, and archeology) and with strong links to related disciplines. The breadth of the discipline and diverse strategies for publication among its practitioners make it a particularly interesting case for our project. Research is heavily dependent upon a variety of media. For example, video, audio, geospatial, and multilingual data are common formats. In addition, the primary scholarly society in the field, the American Anthropological Association, is undertaking an ambitious project to create an interactive repository of publications and research tools. Known as AnthroSource, and funded by the A.W. Mellon Foundation, this project is being published in association with the UC Press.

Readily Accessible Publishing Initiatives. While our case studies will take into account all available methods of publication applicable for a discipline, we do have the opportunity to glean substantive information and gain particular insight into three specific publishing initiatives to which we have ready access. They are both convenient and useful for a planning study of short duration.

- The **E-Scholarship project** is a major effort of UC's California Digital Library (CDL) (<http://repositories.cdlib.org/escholarship/>), currently with more than 5500 holdings and a significant record of use, spreading across disciplinary fields.
- The **University of California Press** has a strong record in traditional publication and has interests and activities as well in innovative means of publication, particularly "sustainable" monograph series. Working jointly with the California Digital Library and International and Area Studies programs on eight UC campuses, the UC Press has initiated such a series in International and Area Studies (<http://repositories.cdlib.org/uciaspubs/>). As well, the UC Press is centrally involved in AnthroSource, noted above, which provides site-license access to the core collection of journals published by the American Anthropological Association (AAA). The UC Press has an unusually involved and active faculty Editorial Board that affords another useful source of interviews.
- The **Berkeley Electronic Press** (BE Press), a private publishing enterprise (<http://www.bepress.com/>), located in Berkeley and with a number of Berkeley faculty editors, currently publishes 22 electronic journals on a subscription basis, and has well-recognized software for online repositories. The current journals concentrate in law and in economics, but there are journals in chemical engineering and biostatistics as well.

Experience gained during the planning study will enable us to compare these fields and consider them along with other disciplines for later, more in-depth studies. Additional candidate fields at present are one or more sub-fields of international and area studies, one of the sub-areas of biological sciences (e.g., molecular and cell biology), physics/astronomy, electrical engineering/computer science, history, and a field heavily dependent upon multimedia publication (art, architecture, new media).

Additional Methods and Approach

In addition to the disciplinary case studies described above, we will pursue the following additional dimensions in the planning study.

- Consolidate existing knowledge of current initiatives and related research.
- Develop a template and comparative structure for the case study components.
- Develop and pilot an interview protocol.
- Clear research with appropriate Institutional Review Boards.
- Develop a methodology for obtaining more detailed information from University of California faculty promotion and advancement cases. Determine whether individual personnel files are available for confidential evaluation by a select team, with the goal of distilling generalizations.² Because of the extreme confidentiality of such records, ascertaining whether and how such access can be attained is a drawn-out process. An alternate approach would involve focus groups and interviews with knowledgeable people. Here it must be recognized that persons at different levels of the academic advancement review process tend to have differing views of the criteria actually at play and the ways in which they are implemented.
- Identify additional disciplinary areas as subjects for future case studies,³ and identify components necessary for inclusion in fuller case studies.
- Convene regular meetings among the Steering Committee and research team.
- Develop contacts with potential partners and outside experts (e.g., CIC, MIT, CIT).
- Solicit short expository essays by members of our steering committee on topics relevant to their experience and expertise, in order to integrate their perceptions of the impact of academic advancement on emerging scholarly communication models.
- Explore ways in which involvement in the project may be broadened to include other institutions.

Interviews and Focus Groups

The core method of this proposed research will be structured interviews (and/or focus groups) with representatives from the following interdependent sectors:

- Faculty authors/editors⁴ in the aforementioned disciplines at UCB. (Three each for each discipline; N=15 interviews). An alternative is to conduct discipline-specific focus groups (1 per discipline; N=5 focus groups), although these could result in less candor from the participants.
- University administrators at UCB involved in the academic advancement process. In the UC system, these individuals include departmental chairs, deans, provosts and recent ex-members of campus committees on academic personnel. (Five chairs and five deans, one provost, one vice provost, four committee members; N=16 interviews, or 2 interviews and 3 focus groups).
- Persons responsible for design and execution of innovative and traditional publishing models (California Digital Library, UC Press, BE Press, Berkeley campus library; N=8 interviews).

² The University of California is unique in having a highly structured and formalized system of academic promotion and advancement, involving written department and decanal recommendations, and written evaluations and reviews by external peer reviewers, and ad-hoc committees and the Committee on Academic Personnel (the Budget Committee at Berkeley) of the Academic Senate. This system enables tangible verification of the academic values at play within both the academic institution and disciplinary fields at large. Although these records are confidential, several members of the project team (King, Jewell, and Goldstein) have extensive first-hand experience with this system.

³ Explore inclusion of a new UCB academic program in New Media, and social science data archives (H. Brady) as additional candidates, along with other disciplinary fields.

⁴ Authors are often also editors of journals. We will include interviews with such faculty.

Our selection of informants will not be random. We will rely on our networks to identify those individuals most likely to be in touch with the relevant issues. For comparative purposes, we anticipate conducting interviews at additional campuses, such as UCLA, in ultimate project.⁵

Interviews will be recorded and coded. Degree of concordance between formal policies (documented evidence) and interview data will be analyzed. The following section on scope of interviews and inquiry outlines the component questions that will guide interview protocols and inform the development of the final case study structure.

Scope of Interviews and Inquiry

The scope of interview questions will be broad. These questions have been designed to tease out areas of agreement and disagreement among the three sectors. Specifically, the case studies and related work will attempt to identify the facts and interrelationships of the following broad questions by discipline:

- What new and useful capabilities are afforded to researchers by the newer methods of communication and publication? How are these new technologies influencing researchers' needs and desires regarding research and dissemination methods?
- What are the realities and perceptions of values reflected in the academic advancement system within a university relating to publication and communication, and the publication medium in particular?
- What methods or actions are seen by researchers as effective for making a name in a field? How does this process vary across disciplines?
- How might reward systems plausibly be influenced and altered to facilitate the use of financially more sustainable means of publication, while preserving the value of the review and reward system? Alternatively, how can the nature of and procedures for newer methods of publication be designed in order to better match the criteria of faculty reward systems? What are the catalysts that can accelerate change in directions that may be desirable from the standpoints of the combination of financial sustainability and support of the faculty reward system? How would the answers to these questions differ by broad disciplinary areas?
- What are the most likely sustainable publication and communication vehicles for a particular field?
- What is institutional capacity to support open-access and/or author-pays, structurally and financially? How would it impact faculty in different disciplines and the university as a whole? If "open access" university repositories represent a viable model, can universities themselves be selective in accepting or rejecting publications on the basis of peer review, or would that violate faculty rights for equal opportunity for advancement?
- How are (can) academic values be integrated with finances, markets and other (e. g., legal) factors?
- What might/should the future look like in the best of possible worlds?

⁵ By targeting two or more UC campuses that have somewhat different academic advancement systems (e.g., UCLA and UCB), we can potentially identify the effect, if any, of different academic advancement systems on perceptions and realities.

Synthesis of Existing Knowledge.

Our work will build on previous work sponsored by the A.W. Mellon Foundation's Scholarly Communication program area, as well as other research (see Appendix B for preliminary list of associated research). As noted, it will also be informed by the significant emerging knowledge generated by the experience gained by the UC Berkeley library, the UC CDL E-scholarship pre-print repository (institutionally funded open access), the UC Press sustainable monograph programs, and the Berkeley Electronic Press (subscription-based).⁶

Our work will also leverage additional activities taking place throughout the UC system, including a new CSHE Scholarly Communication seminar series (<http://cshe.berkeley.edu/projects/scholarlycomm/index.html>). We also have the opportunity to integrate information developed from a major UC Berkeley campus conference (*March 31, 2005*), which was directed toward identifying means of attracting faculty toward greater use of, and service to, innovative means of publication (<http://www.lib.berkeley.edu/scholarlypublishing>). The forum was structured in such a way that we were able to begin an assessment of the range of attitudes assembled faculty have concerning electronic journals, monographs, institutional repositories, advancement issues, and other areas.

Deliverables and Dissemination

The primary product of this planning project will be a final report that will provide the broad outlines of five disciplinary case studies. From these results, we will derive a more comprehensive research agenda (the ultimate project) that will integrate issues of academic values and rewards with considerations of effective advances of scholarship, sustainable business models and other factors. We also anticipate more detailed development of these cases (e.g., increase number of interviews, refine parameters of case study components, etc.), additional cases studies, and/or supplemental methodologies. The report, which will be posted on the CSHE website, will be made widely available to the Foundation, our partners, administrators, and others interested in this broad topic of research.

Management and Staffing

Steering Committee

The Steering Committee is composed of a range of (1) highly regarded social science scholars (e.g., economics, political science, statistics, anthropology), (2) those who understand the academic and research enterprises and value systems, and (3) those involved directly in practical innovations as well as traditional publishing methodology, and (4) academic overseers of libraries. Several members have unique knowledge of how universities work (e.g., governance, budgeting). They bring a comprehensive collective overview, as well as direct, extensive, and complementary experience with the issues, with particular expertise in the area of public research universities. The Center and the Committee members are positioned at the level of university leadership and are thereby able to influence change directly. In addition, several members of the Committee have first-hand, in-depth knowledge of faculty reward and incentive systems, as well as disciplinary values and culture. There is also ample opportunity for close interaction of these experts with a number of practical operations, both innovative and traditional, taking place nearby. See Appendix A for Steering Committee names and biographical sketches.

⁶ One particularly fruitful initiative for study is one that CDL is embarking on, which would explore the establishment of an institutional repository program that will work across various public research university systems.

Research and Management Team

C. Judson King, Director of CSHE, and UC Provost and Senior Vice President for Academic Affairs, Emeritus, is the Principal Investigator for this project. CSHE is the lead fiscal agent. Jud King and Dr. Diane Harley, a Senior Researcher at CSHE, will be responsible for overall project management and direction, which includes planning and organizing the project, subcontracting project work (e.g., consultants), monitoring and reporting progress. Shannon Lawrence, who resides in Colorado, will be hired as a research associate to manage the data collection and analysis. She has extensive experience in qualitative research methods and analysis, and has worked with CSHE on previous A.W. Mellon funded research projects. Graduate student researchers will be hired as needed.

The organizing unit and venue for the proposed research will be the Center for Studies of Higher Education (CSHE), University of California, Berkeley, a long-standing Organized Research Unit that has exercised national and international leadership in research on higher education. It has significant experience in the administration and coordination of research projects such as this, and in the dissemination of said research.

Timeline

Project Period. 10 months: May 2005 –March 2006

May 15	June	July	August	September	October	November	December	January	February/ March 15	
<ul style="list-style-type: none"> • Consolidate existing knowledge of current initiatives and related research; literature review and collection of documented evidence. • Meetings of Steering Committee, research team, partners, and outside experts (e.g., CIC, MIT, CIT). 										
<ul style="list-style-type: none"> • Clear research with appropriate Institutional Review Boards • Develop a template for the case study components. • Develop and pilot interview/focus group protocols. 	<ul style="list-style-type: none"> • 15 interviews/focus groups with senior and junior University of California faculty. • 16 interviews/focus groups with faculty and academic administrators. • 8 interviews with persons responsible for implementing innovative scholarly publishing initiatives. • Short expository essays by members of our steering committee on topics relevant to their experience and expertise. 									
	Develop a methodology for obtaining more detailed information from University of California faculty promotion and advancement cases.					<ul style="list-style-type: none"> • Plan 1-day meeting to be held in future • Publish expository essays and preliminary results online. 			Publication of Final Report.	
					<ul style="list-style-type: none"> • Analysis of interviews. • Identify additional disciplinary areas as subjects for case studies, and identify components necessary for inclusion in final case studies. • Explore existence of sustainable models. • Development of five case studies. 					

Steering Group and Biographical Sketches

- **C. Judson King, Principal Investigator:** Director, Center for Studies in Higher Education. Provost and Senior Vice President – Academic Affairs (UC System) Emeritus. Professor of Chemical Engineering Emeritus. Former Provost – Professional Schools and Colleges, Dean of the College of Chemistry and Chair, Department of Chemical Engineering, UC Berkeley
- **Aaron S. Edlin:** Professor of Economics and Law, Co-founder and Principal, Berkeley Electronic Press
- **Thomas Goldstein:** Emeritus Professor of Journalism and Director, Program in Mass Communication. Former Dean of Schools of Journalism at both Columbia and UC Berkeley.
- **Daniel Greenstein:** University Librarian, Vice Provost and Executive Director, California Digital Library, University of California.
- **Diane Harley:** Senior Research Associate, Center for Studies in Higher Education.
- **Nicholas P. Jewell:** Professor of Biostatistics and Statistics. Former Vice Provost, UC Berkeley. Editor, Berkeley Electronic Press.
- **Thomas C. Leonard:** University Librarian, UC Berkeley. Professor of Journalism.
- **John Lie:** Dean, International & Area Studies. Professor of Sociology.
- **Peter Lyman:** Professor of Information Management & Systems. Former University Librarian, UC Berkeley.
- **Daniel L. Rubinfeld:** Robert L. Bridges Professor of Law and Professor of Economics. Former Deputy Assistant Attorney General for Antitrust in the U.S. Department of Justice.
- **Lynne E. Withey:** Director, University of California Press.

Biographical Sketches (draft, to be expanded)

C. Judson King is Director, Center for Studies in Higher Education at the University of California, Berkeley, following a 42-year career at the UC Berkeley campus and system levels. Most recently, he was Provost and Senior Vice President – Academic Affairs of the University of California system (1995-2004), and before that system-wide Vice Provost for Research (1994-95) and Provost – Professional Schools and Colleges (1987-94), Dean, College of Chemistry (1981-87), and Chair, Department of Chemical Engineering (1972-81). He is a Professor of Chemical Engineering, with over 240 research publications and a widely used text book, *Separation Processes*. His research has centered upon separation processes, including spray drying, freeze drying, solvent extraction and adsorption. He is a member of the National Academy of Engineering and has received major awards from the American Institute of Chemical Engineers, the American Chemical Society, the American Society for Engineering Education and the Council for Chemical Research. He has been active with the California Council on Science and Technology (an organization analogous to the National Research Council for the State of California), serving as Chair of the Council (2002-04). He chaired the Planning Group that defined the School of Information Management and Systems at Berkeley and oversaw the launching of the California Digital Library and its E-Scholarship project while UC Provost.

Aaron Edlin is a leading expert in economics and law, specializing in antitrust economics and law, and is the co-founder of the Berkeley Electronic Press. By 1998, age 31, he held a Ph.D. in economics and J.D. in law from Stanford; tenured professorships in both the economics department and law school at UC Berkeley; and served as Senior Economist at the Council of Economic Advisers in the Clinton White House covering industrial organization, regulation and antitrust. In 2004, he became co-author with P. Areeda & L. Kaplow of the leading casebook on Antitrust; he has also published many articles on industrial organization, competition policy, antitrust law, and a variety of other issues in economics, law

and public policy. He received his AB *Summa Cum Laude* from Princeton. He is Co-Editor and Founder, *The B.E. Journals of Economic Analysis & Policy*; Editor and Founder, *The Economists' Voice*; and Editor, *The B.E. Journals of Theoretical Economics*.

Tom Goldstein serves as the Director of the Mass Communications program at the University of California, Berkeley where he is also a Professor Emeritus in the Graduate School of Journalism. He is currently the Frank Russell Chair in journalism at Arizona State University. Goldstein has been a journalism educator for the last 20 years, first at the University of Florida, then at the University of California, Berkeley's Graduate School of Journalism (where he served as dean from 1988 to 1996) and finally at Columbia University Graduate School of Journalism (where he served as dean from 1997 to 2002). He has also been a visiting professor at the Kennedy School at Harvard and at Stanford. A graduate of Yale College, Columbia University Graduate School of Journalism and Columbia Law School, Goldstein was the founding editor of *Juris Doctor*, a magazine for young lawyers. He worked as a reporter at several news organizations, including the Associated Press, Newsday, the Wall Street Journal and the New York Times. He served as press secretary to New York City Mayor Edward Koch from 1980 to 1982. Goldstein has written *The News at Any Cost*, *A Two-Faced Press* and co-authored *The Lawyers Guide to Writing Well*. He also edited the book *Killing the Messenger: 100 years of Press Criticism*. A native of Buffalo, New York, he is a graduate of Yale University, Columbia University Law School and the Columbia University Graduate School of Journalism. He also attended the Institute of Criminology at Cambridge University in England.

Daniel Greenstein is University Librarian for systemwide library planning and scholarly information and Director of the California Digital Library (CDL). Before joining the CDL in May 2002, he served for two and a half years as director of the Digital Library Federation, which helps libraries throughout the nation with issues related to digital collections. Mr. Greenstein was a founding director of the Arts and Humanities Data Service in the United Kingdom, and founding co-director of the Resource Discovery Network, a distributed service whose mission is to enrich learning, research, and cultural engagement by facilitating new levels of access to high-quality Internet resources.

Diane Harley is a Senior Researcher at the Center for Studies in Higher Education (CSHE), University of California, Berkeley. Her teaching and research experience is in both the biological and social sciences; she received a Ph.D. in Anthropology from UC Berkeley. Diane has been involved with a variety of educational technology implementation and policy initiatives At UC Berkeley. The projects for which she has served as principal investigator include *An Economic and Pedagogical Analysis of Technology Enhancements in a Large Lecture Course* and *The Use of Digital Resources in Humanities and Social Science Undergraduate Education*. She currently serves with Neil Smelser and Michael Schudson on the *Commission on General Education in the 21st Century*.

Nicholas Jewell is a professor of Biostatistics and Statistics at UC Berkeley. Jewell is also a Fellow of the American Statistical Association and the Institute of Mathematical Statistics. His research interests include biostatistical techniques in epidemiological data analysis and stochastic processes, genomics, and statistical methods related to infectious diseases. He was both Vice Provost at UC Berkeley, and served as a member of the UCB Budget Committee.

Tom Leonard is University Librarian and Professor at the Graduate School of Journalism, where he formerly served as Associate Dean. Leonard taught American history at Columbia University before joining the faculty at the University of California, Berkeley's Graduate School of Journalism. He has consulted for the Library of Congress and was chair of the UC Berkeley Academic Senate Library Committee, as well as co-chair of the Digital Library Advisory Committee. The author of three non-fiction books and dozens of magazine articles on politics, history and the media, Leonard is now working

on a book about “notorious Americans” and how journalists and historians have helped to build them up and tear them down.

John Lie (pronounced “Lee”) was born in South Korea, grew up in Japan and in Hawaii, and attended Harvard University where he received A.B. *magna cum laude* in Social Studies in 1982 and Ph.D. in Sociology in 1988. Currently he is Class of 1959 Professor and Dean of International and Area Studies at the University of California, Berkeley. Lie has published several books on social imagination theory and has devoted considerable energy to undergraduate teaching and academic administration. His longstanding interest in pedagogy has culminated in an introductory textbook, *Sociology: Your Compass for a New Century* (co-authored, Wadsworth, 2003). Before joining the Berkeley faculty, Lie was Head of Sociology at the University of Illinois at Urbana-Champaign for five years, and directed the Center for Japanese Studies and the Korean Studies Program at the University of Michigan. He has also taught at the University of Hawaii at Manoa, Yonsei University (South Korea), University of Oregon, Keio University (Japan), National Taiwan University, University of Waikato (New Zealand), and Harvard University.

Peter Lyman received his BA from Stanford University in Philosophy, MA from Berkeley in Political Science, and PhD in Political Science from Stanford. He currently serves on the editorial boards of the *American Behavioral Scientist*, the *Journal of Electronic Publishing*, and *Information Technology, Education and Society*. He is currently a member of the Board of Directors of Sage Publishing, Inc., and has previously served on the Board of Directors of EDUCOM, the Research Libraries Group (RLG), The Babbage Institute, the Technical Advisory Board of the Commission on Preservation and Access, the Council on Library and Information Resources (CLIR), and the Internet Archive. His most recent project is a study of how much new information was produced in 2002; see *How Much Information 2003?*

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Lynne Withey is Director of the UC Press. She has been associated with the Press for nearly 20 years, becoming Director in 2002. Withey holds a Ph.D. in history from UC Berkeley. She taught at the University of Iowa and Boston University before returning to the UC system, where she worked in the Office of the President and taught part time on the Berkeley campus. She is the author of four books.

Shannon Lawrence is a Research Consultant at UC Berkeley's Center for Studies in Higher Education (CSHE), responsible for various aspects of research design, data collection, and writing/editing. Formerly the Assistant Director of the Higher Education in the Digital Age project, Ms. Lawrence coordinated a two-year evaluation of technology enhancements in a large lecture course and co-edited a volume on distance learning efforts in research universities. She has also collaborated on national and statewide research and evaluation projects at the California Social Welfare and Education Center, the Service Learning Research and Development Center, and the National Center for Research in Vocational Education. Ms. Lawrence earned her B.A. from UC San Diego and holds an M.A. from the Graduate School of Education, UC Berkeley.

APPENDIX B

Associated Research and Literature

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