



Models of Academic Support: Library/Faculty Fellows for
Undergraduate Research – Planning and Pilot Project
University of California, Berkeley

2002 – 2004 FINAL REPORT
September 27, 2004

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Table of Contents

History Background.....	3-5
Project Organization.....	5-7
Project Staff.....	6
Project Budget.....	6-7
Publicity and Outreach.....	7
Evaluation Assessment.....	7-14
Project Partners' Collaboration.....	8-9
Summer Institute.....	9-10
Impact on Teaching, Course Design, Curriculum, and Use of Library.....	10-13
Impact on Student Learning.....	13-14
Communication Collaboration.....	14-15
Impact on Partners.....	15-17
Division of Undergraduate Education.....	15
Office of Educational Development	16
Graduate Student Instructor Teaching and Resource Center.....	16
The Research Library.....	16-17
Grant Planning.....	17-18
Future Plans.....	18-19
Conclusion.....	19
Appendices A-G	

History | Background

In July 2002, the University of California, Berkeley received a two-year grant of \$138,000 from the Andrew W. Mellon Foundation to pilot a campus plan aimed at strengthening the links between faculty research and undergraduate education, and including the use of library collections and teaching of information literacy as integral parts of student learning. Our overall project goal was to harness Berkeley's renowned research strength in the service of undergraduate learning. This is also a goal of much of the campus' current undergraduate academic planning.

The project was designed around two driving strategies:

1. to cultivate a campus collaboration of academic partners (which would in turn create a sustainable infrastructure for Fellows and other instructors);
2. to develop and nurture a cohort of instructors dedicated to a new way of teaching.

The project is structured to support each year's cohort members to become change agents within their academic departments and across the campus. In Berkeley's highly decentralized campus environment, it is the faculty who oversee the campus curriculum and they, with other classroom instructors, must therefore be the primary agents of curricular reform.

The Mellon pilot project was structured in three phases over two years.

Phase I	July – December 2002	Project Partners developed a collaborative vision and work plan for the project, and made significant progress at institutionalizing and leveraging the campus collaboration.
Phase II	January – May 2003	Project Partners developed the curriculum for the Institute, selected the Mellon Fellows, and developed an overall evaluation/assessment plan.
Phase III	June 2003 – June 2004	Project Partners offered the initial 3-week Institute for thirteen Mellon Fellows. Partners individually consulted on implementation plans with the Mellon Fellows as they offered new or revised courses in 2003-2004. Fellows and Project Partners shared their experiences with the local and national academic community. Partners wrote a new grant for June 2004 – December 2007 which incorporated lessons learned through the pilot project resulting in continuous program improvement.

The development of a long-term, sustainable campus collaboration of academic partners who share skills and leverage resources to support the pedagogy of teaching and learning has been the core of Berkeley's model. These Project Partners comprise the University Library, the Division of Undergraduate Education (including the Office of Educational Development and Educational Technology Services), and the Graduate Student Instructor Teaching and Resource Center, under the leadership of Tom Leonard, University Librarian and Christina Maslach, Vice Provost for

Undergraduate Education, who served as Co-Principal Investigators on the project. Kwong Loi-Shun left Berkeley to become a Vice-President at the University of Toronto during the second year of the grant. Patricia Iannuzzi, Associate University Librarian, was the Library designate, Steering Committee Chair, and Foundation contact. Pat Maughan was Project Manager.

This final report covers Phase III pilot activities (June 2003 – June 2004) and supplements our Interim Report, dated July 15, 2003, which provided a full campus context for the project and described in detail Phases I and II (July 2002 through mid-June 2003).

Beginning in January 2003, Project Partners developed a Mellon Faculty Institute on Undergraduate Research, piloted in summer 2003. They defined the role of the Mellon Fellows, structured the curriculum for the Institute, and planned with the Mellon Fellows how they could best share their experiences with colleagues.

In turn, the thirteen Fellows participated in an intensive series of symposia, workshops, and individual consultation sessions comprising the three-week Institute, which addressed course and research assignment design, student learning outcomes, information literacy, instructional technologies, assessment, and pedagogical strategies. Fellows explored ways to more fully incorporate undergraduate research into their courses as they participated in the Institute's various demonstrations, peer learning, hands-on instruction, and discussions with librarians and experts in instructional development.

Following the Institute, the Project Partners provided ways for the Fellows to work closely with teams of librarians, and with instructional technology specialists, pedagogy experts, and other academic staff to implement their redesigned courses and conduct classroom assessments. The Partners also provided venues – actual and virtual – for the Mellon Fellows to share their experiences with colleagues and disseminate the results of their individual projects on the campus and across the nation.

The recruitment, application, and selection processes for the Mellon Fellows and the overall project objectives were aligned with specific campus initiatives on undergraduate education. The focus was on: the integration of the research and teaching mission of the campus through inquiry-based education; identifying learning objectives and incorporating the assessment of student learning into courses; engaging students in complex problems that draw from multiple fields of inquiry; and promoting the development of information literacy and undergraduate research competencies. These strategies were designed to create a common vision of what the campus wishes to achieve in undergraduate education.

We continue to believe that we have made outstanding progress to these ends. In this second year of the Mellon grant, some specific activities that helped us achieve our objectives were:

- Continued to support campus projects related to teaching and learning through the Council of Academic Partners (e.g. the New Faculty Orientation, the Presidential Chair Fellows, a Personalizing the Large Enrollment Course event, and a Faculty Seminar on Teaching with Graduate Student Instructors);
- Hosted seven collaboration lunch events for the 2003 Mellon Fellows;

- Hosted a campus-wide Mellon collaboration event welcoming the 2004 Mellon Fellows on Undergraduate Research and featuring reports of experiences from two of the 2003 Mellon Fellows, to which deans, department chairs, and prospective 2005 applicants were invited;
- Conducted multiple evaluations and assessments; studied evaluation results and noted recommended changes to the Institute curriculum and Partner collaboration efforts;
- Continued the cultural shift within the University Library and the Council of Academic Partners;
- Made national presentations to the Association of Research Libraries' University Librarians Group (Christina Maslach, Vice Provost for Undergraduate Education and Patricia Iannuzzi, Chair of the Steering Committee) the Council on Library and Information Resources' Annual Meeting (Patricia Iannuzzi), and the Society of American Archaeology (Ruth Tringham, 2003 Mellon Library/Faculty Fellow);
- Contributed to the design of a program at the University of Kentucky, modeled on the Berkeley Mellon Institute, by sharing Institute materials and providing a keynote speaker to the program (Ingrid Seyer-Ochi, 2003-2004 Mellon Library/Faculty Fellow);
- Favorably impacted the quality of undergraduate research on the campus: two of the 2003 Mellon Fellows mentored award winning student research projects recognized by the 2004 Library Prize on Undergraduate Research;
- Wrote a new grant proposal and were subsequently awarded \$749,000 to continue the program.

During Fall 2003 and Spring 2004, Project Partners provided ongoing, personalized support to the Mellon Fellows for their new or revised courses for the 2003-2004 academic year. This included addressing seven requests for support in building course web sites; six requests for advice on library instruction sessions; five requests for librarian advice on library resources; five more for independent, expert reviews of the Fellows' final draft syllabi and assignments; four requests for additional assistance with assessment; and individual appeals for help – with a range of software packages (PowerPoint, Flash, etc.), multi-media, digitization of primary resource materials, digital reserves, and copyright, etc.

This personalized level of support allowed the Project Partners to develop and deepen their relationships with the teaching faculty over time. In turn, these contacts resulted in a number of significant impacts, including the systematic redesign of course syllabi to incorporate explicit learning objectives and the tailoring of research assignments to support course objectives. Research was integrated into multiple phases of many of the courses. Faculty and students both report that they wrote better papers. Faculty and students both report that student engagement and the participatory nature of many of the courses increased. Fellows experienced greater clarity about what they were trying to accomplish within their courses and as a result, reported that they had become better educators. These and other impacts are described in the Evaluation section of this report.

Project Organization

Two primary objectives of the grant have been to develop a sustainable infrastructure for collaboration, and to support related faculty development initiatives on campus. Many decisions

about the staffing, budget, evaluation and assessment, publicity, selection, curriculum, and collaboration reinforced the commitment to these ideals.

Project Staff

The Steering Committee continued to comprise representatives from each of the Project Partner units. Year One of the pilot resulted in a number of lessons learned by the Partners that influenced our work in year two as well as our planning for the larger grant. As a result of lessons learned, we recognized the need to:

- work on a more focussed, scalable approach to the recruitment of fellows (actively recruiting faculty who teach large enrollment, lower division, American Cultures (Berkeley's only campus wide requirement), and other "high impact" courses;
- lower the fellowship stipends after the first year of the pilot. We felt this could be done without serious consequences to the program or number of applicants and thereby enable post-grant sustainability;
- award funds to selected Fellows' home departments to successfully foster and institutionalize departmental commitment to "Mellon inspired" curriculum change;
- make a more concerted effort to involve Graduate Student Instructors, since they are heavily involved in the delivery of large enrollment courses;
- examine ways in which the Project Partners and their staffs can do a better job of integrating into departmental curricular reform;
- continue to grow and deepen the infrastructure of the Project Partners to include not only senior administrators, but also their staff, in order to foster sustainable products and ranges of services that will meet the Fellows' needs as well as those of other faculty engaged in undergraduate teaching and learning;
- create collaboration opportunities for partner staff to focus their individual expertise on developing scalable solutions;
- continue discussions and determine the relative importance and feasibility of enacting the various project evaluation objectives;
- re-work the overall Assessment/ Evaluation plan for the next 3 year grant.

Project Budget

Appendix A shows overall fund expenditures. The grant total of \$138,000 was increased to \$141,870 by interest earned in year one. In year two, the campus implemented a new policy whereby interest earned from grant income was no longer passed on to departments but was instead retained in a central fund. Total expended was \$138,049.

The budget summary shows several changes from the original grant application. The Foundation approved funding for two extra Fellows. One more Fellow was included and funded by the academic department bringing the total to 13. \$2000 was moved from budget line 3, the web manager/clerical support, and \$8000 was moved from presenters' consulting fees for the \$10,000 needed for the two extra Fellows. We used campus experts and Partner staff for all our events and did not pay for external presenters or experts. The Project Manager also assumed more of the web work. The Library also redirected \$4180 of the funds originally intended for clerical and web support, to pay for campus events and meetings amongst the Fellows in order to strengthen the cohort and to provide opportunities for them to share. We believe this shifting of funds forced us

to build the work into permanent assignments of existing staff which will support long term sustainability. Funding was used on special events for the Fellows.

In addition to in-kind contributions of project personnel from all the Project Partners as listed on the original grant proposal, the University Library provided an additional \$10,000 in collections funds for Mellon Fellows to acquire relevant library collections in print or digital format. The budget summary also shows \$3,821 in interest earned in year one that can be returned. Beginning in year two, the campus implemented a new policy of taking all interest earned for central funding.

Publicity and Outreach

In this second year of the pilot, phase one of Mellon publicity and outreach departed from the first year's approach which featured the campus-wide mailing of an attractive brochure to all departments and ladder rank faculty describing the new Mellon Faculty Institute on Undergraduate Research and inviting applications from interested faculty.

A second phase was designed to promote general awareness of the Mellon grant and its connection to the educational themes and priorities on campus. This included a well placed article entitled "Improving Undergraduate Research Skills: An Innovative Grant Program Coaches Faculty in Techniques for Enriching This Key Attribute of Academic Success" (Appendix F) which appeared in The Berkeleyan, the major campus-wide publication reaching faculty and staff, and a one-page fact sheet on the Mellon Project, used in a variety of campus and national presentations about the Project (Appendix G).

A third phase was begun in Fall 2003, and involved the re-purposing of a variety of assessment video clips described earlier documenting interviews conducted by the Project Manager with the 2003-2004 Fellows and with students enrolled in a select number of redesigned courses. These clips described both the content and the enthusiasm that defined the Institute, and shared ideas about the program's impact on undergraduate research assignments and student learning. A longer length video entitled "Bears in the Library -- Cal Students Talk About Research" was produced and explores how Berkeley undergraduates conduct research in a networked age and how their mastery of information literacy skills impacts their attitudes, their learning and their lives. It is available on DVD and the Web.

(See <http://library.berkeley.edu/MellonInstitute/photos.html> and http://library.berkeley.edu/MellonInstitute/video_gallery.htm).

Other campus-wide and national presentations on the Project are described on page 3 of this report. In addition to these presentations, Patricia Iannuzzi made presentations to various donor groups on the campus, including Class Gifts, the Library Board, Cal Parents, and the University Development Officers, to interest them in funding or securing funding to continue the program after Mellon funding ends, thus addressing its sustainability.

Evaluation/Assessment

Evaluation planning has been part of the Mellon proposal from the project's inception. A part-time Assessment Consultant was budgeted to work with the Steering Committee during 2002-2004 as part of the Office of Educational Development, a unit that reports to the Assistant Vice Provost for

Undergraduate Education and is one of the Project Partners. The overall evaluation/assessment plan for the two year Pilot Program included four evaluation areas:

- 1) the Project Partners' collaboration,
- 2) the summer Institute (SI),
- 3) the impact of the project on teaching, course design, curriculum, and students' library use,
- 4) the impact of the project on student learning.

An evaluation framework and plan was developed around each of these four themes and a set of evaluation questions was identified for each and vetted by the Evaluation Working Group established in 2003.

The purpose of the evaluation plan was to provide the Principle Investigators and Project Partners with both short-term, formative evaluation activities and considerations for a long-term evaluation plan for the project. The formative evaluation activities were accomplished by the end of year two of the pilot, and the longer term evaluation efforts focused on the pilot testing of various instruments and methodologies for use in future years of the Institute and project. "Lessons learned" from the evaluation greatly influenced conceptualization and focus of the three-year grant, and some infrastructure issues, particularly those related to creating infrastructure to institutionalize and sustain the momentum when funding ends.

Following are summaries of the four major evaluation areas.

Project Partners' collaboration

Instruments

- Mid-year Project Partners Collaboration Survey (January 2003)
- Mid-year Project Partners Collaboration mini-workshop (March 2003)
- 2003 Mellon Institute – Notes from Post-Institute Debriefing Meeting (June 2003)
- 2003 Mellon Institute – Post-Institute Survey of Partners (August 2003)

Question areas

A mid-year Partners' Collaboration Assessment Survey (January 2003) queried the Partners' about their satisfaction with the ways in which the group was working and the effectiveness of the various modes of communication (email, website, in-person meetings). It explored positive aspects of the group and its work and how the members saw they might improve on their collaboration. A mini-workshop (March 2003) was developed as a follow on to the survey to explore the differences in individual definitions of collaboration and perceptions of the group's overall success in collaborating. Partners were asked to twice place a consideration of the group's performance along a continuum of cooperation, coordination and collaboration for each of four project dimensions: vision and relationships; structure, responsibilities, and communication; authority and accountability; and resources and rewards. We looked at where we thought we were and where we would like to be.

The 2003 post-Institute Partners Survey repeated questions on satisfaction with the way the group was working, aspects of communication, successful strategies that should be carried on, and suggestions for improvement. Project Partners were asked about the impact of the collaboration on their understanding of respective roles and expertise, new ideas learned from the collaboration that they integrated into unit operations, and the impact of this collaboration on the Partners' desire to develop new collaborative projects.

Planning for continuous improvement

Overall, the Project Partners were pleased with the collaboration to date and wished to continue the Mellon project as a collaborative effort. Though collaboration can at times be challenging, Partners felt the benefits (learning more about different units on campus, connecting with other staff, learning from one another, leveraging limited resources, etc.) were well worth the effort. Partners wanted to focus in the future on developing more projects undertaken for long term results, on getting to a place where equal risk is shared by all of the members, and where resources are pooled or jointly secured for longer-term efforts that are managed by a collaborative structure. From September 2003 to Summer 2004, we successfully completed a pilot project in which the content and flow of the Institute and the Assessment plan were team-planned and where the Partners got to know one another better. The Steering Committee now feels at ease with delegating more of the work, holding fewer meetings, and concentrating less on the Institute, and more on identifying ways in which the Project Partners and their staffs can deepen their relationships and focus on departmental curriculum reform.

Summer Institute

Instruments

- Content analysis of Fellow applications (Spring 2003)
- 2003 Mellon Institute – Pre-Institute Survey of Fellows (May 2003)
- 2003 Mellon Institute – Post-Institute Survey of Fellows (June 2003)
- 2003 Mellon Institute – Post-Institute Survey of Partners (August 2003)

Question areas

The content analysis of Fellows' applications concentrated on identifying what the Fellows hoped to gain from participation in the Institute and the ways in which they anticipated changing their courses prior to actually experiencing the Institute. Before the Institute, Fellows were surveyed regarding the extent to which they personally used the library for instructional purposes, expected their students to do so, used technology or the web as a teaching aid, assessed student learning in their course, etc. Additionally, they were asked about the extent to which they engaged in a range of topics associated with the creation of meaningful research experiences for undergraduates enrolled in their course (see Appendix B).

During the Institute, Fellows were queried informally about the Institute so that mid-course corrections in the workshop could be enacted as needed. Following the Institute, the Fellows were asked to individually rate each session, based on the importance of the topic to them personally, and their satisfaction with the session itself. They were also asked to

rate the effectiveness of the Institute overall, and provide their opinions about the most and least valuable aspects of the Institute, ideas for improving future offerings of the Institute, topics requiring more time or focus, and satisfaction with the structure of the Institute and way in which it was facilitated. (see Appendix C).

Planning for continuous improvement

The results from the content analysis were shared with the Institute planners who found the information helpful in “personalizing” the workshop curriculum and assignments. While the results of the Pre-Institute Survey were shared with the Fellows during the Institute as an example of a classroom assessment technique, this turned out to be less than fully satisfactory. Many of the Fellows were already familiar with classroom assessment techniques and for those who weren’t, the technique was too advanced since it relied on computer technology and an online survey service.

Overall, the Fellows were extremely pleased with the Institute. On a five-point scale where 5 was *Extremely Effective* and 4 was *Very Effective*, the median score was a 5 and the mean score was 4.15. Participants found the interaction with colleagues to be particularly valuable and so additional time for this was provided for in planning the 2004 Institute. Sessions rated most highly centered around library topics and finding information resources. Sessions rated lower tended to deal with teaching in general, information about students, and assessment issues. This latter set of concerns resulted in the removal of much of this content from the 2004 Institute, and the decision to replace the facilitator for the assessment component of the Institute.

Other concerns centered on issues of timing. In particular, the overall length of the Institute was questioned and the desire to see less “homework” and more time within the Institute to complete work on syllabi and assignments, a more “hands on” session on classroom technology, and computer lab space and time to use it within the Institute curriculum were expressed. Again, these concerns were addressed in planning for the 2004 Institute. Results of the Partners survey about the Institute generally paralleled those of the Fellows. In addition, the Partners saw the need to improve communication among facilitators during the course of the Institute as it unfolded, and a need to “push” the staff collaboration in the various Project Partner units to the next level within their organizations.

Impact of Mellon on teaching, course design, curriculum and students’ library use

Instruments

- Video interviews with Fellows and students enrolled in Fellows’ post-Institute courses (Fall 2003/Spring 2004)
- 2004 Mellon Institute – Faculty Fellows Report regarding experiences conducting their courses (January 2004)
- Content analysis of course syllabi

Question areas

Video interviews were conducted during Fall 2003 and Spring 2004 with selected Fellows. Questions focussed on:

- the impact on undergraduates of introducing research into their classes;
- the Institute's impact on them as faculty;
- specific lessons they'd learned during the Institute that they applied in their courses;
- their experiences working with Library Partners;
- how their experiences were influencing curriculum changes within their home departments; and
- how they had re-conceptualized undergraduate teaching and learning as a result of the Institute.

The January 2004 Fellows Report sought to collect data on:

- any changes the Fellows had made in their courses;
- the assessment activities they'd undertaken to gauge the effectiveness of these changes;
- the results of their assessment, changes they had observed in student learning, attitudes, or behavior, and lessons learned.

The content analysis of course syllabi sought to determine:

- the extent to which the Fellows applied lessons learned from the Institute to their final syllabus design with respect to course purpose;
- learning objectives or learning outcomes;
- course activities designed in support of learning objectives;
- and student research projects. (See Appendix D for rubric.)

Planning for continuous improvement

The production of videotaped interviews of selected 2003-2004 Fellows and their students served as a means of assessing the impact of the Institute on faculty teaching and student learning and behaviors. It turned out to be a creative solution to the challenge of collecting assessment data and one that we would like to continue for the duration of the project. It is a relatively cost effective and painless method of gathering qualitative evaluation data, requiring far less in the way of resources than is needed to undertake a large scale quantitative survey and analyze survey results as is described later on in this report.

The video interviews require a minimum of time commitment from the faculty, and therefore the Fellows were far more enthusiastic about participating in them than they had been to responding to the January 2004 solicitation of a written report, discussed shortly. We also found that this rather "straight forward" assessment project resulted in media that could be re-purposed for publicity and outreach for the project and for training videos used within the subsequent Institutes.

Interviewees' comments included the following observations by the Fellows:

"...I'm changing drastically the way that my syllabus works ... Effective research needs to be broken down into steps, and each of those steps needs a fair amount of thinking, and discussion, and coaching ... and ... I hadn't done a lot of helping on that research process [my] intervention came too late in the process ... I

now see it needs to start earlier in the semester and to go – step by step – in thinking much more deeply about how we interrogate source material.”

“... the students wrote better papers ... and writing better papers is a satisfying experience.”

“ [the students] created the class content and therefore increased the participatory nature of the course.”

“...research has been integrated into multiple phases of the course.”

“ [during the Institute] ... I spent an intensive period of time with colleagues really deeply reflecting on the practice and art of teaching [the fellowship] ...invigorated my teaching a great deal ... I was much more “*on*”... it was clearer to the students what I was trying to do, because it was clearer to me ... I am a much better educator, and if I am a better educator, then the students are learning more, and that’s what we’re here for.”

Student interviewees reflected upon the excitement and empowerment they experienced as a result of learning through the act of library research, how they had gained “courage” and “confidence” through self-directed research and learning, and how they were “working smarter, not harder” as a result of learning to do research. At the same time, they enjoyed and celebrated the “thrill of discovery.” They used the campus’ research libraries for the first time, when they had not done so before. They evaluated the merits of the information they collected and used evidence and data to support their ideas, both in writing and oral presentations.

Selected video clips were utilized in several national presentations made by Patricia Iannuzzi (Chair of this year’s Steering Committee), including a presentation made to University Library Directors at a Spring 2004 Association of Research Libraries meeting and the annual meeting of the Council on Library and Information Resources, and by Ruth Tringham (2003-2004 Mellon Fellow) to the Society of American Archaeology in late Fall 2003. Selected footage was also edited to produce a new Institute video entitled “Bears in the Library – Cal Students Talk About Research,” scheduled to be shown during the 2004 Institute. The videos have also been very useful as part of presentations to potential donors and alumni groups.

In January 2004, Fellows were asked by the Assessment Consultant to complete a report in which they outlined the findings of their course assessments. Only one Fellow responded to this request. Others who did not indicated that they had not collected “formal” data, so were confused about what to report. They also expressed the need for additional resources (unavailable from either the campus or the Project) to help them summarize and analyze the data. Without this, they abandoned a review of the data. There is no report for this aspect of the project. This points to the need to make explicit at the outset what is expected of the Fellows with respect to assessment activities so that they are prepared to meet expectations and can be provided with the support necessary to accomplish this and the need to identify scalable and achievable assessment. An

alternative strategy might be to scale back the Project's expectations with respect to each individual Fellow's responsibilities for assessment. This experience resulted in a dramatic revision of the assessment of student learning component of the overall evaluation in the subsequent grant. The major change was creating a position separate from the evaluation consultant that will continue after the funding ends, and to hire a different person with better skills at workshop design and consulting with faculty.

The analysis of the course syllabi revealed that following the Institute, most of the Fellows were able to clearly articulate the purpose and learning outcomes for their course, and to relate course activities and the research project to course goals and learning outcomes. The rubric for evaluating the redesigned course syllabi used a rating scale where 3 = a model syllabus, 2 = proficient, and 1 = does not meet expectations. Eight of the thirteen syllabi were evaluated. In five out of the eight cases, the syllabi earned either a 2 or 3 in nearly all of the course dimensions being evaluated (course pre-requisites, course purpose, learning goals or outcomes, course activities and assignments, and research).

Many of the Fellows indicated that they felt far better prepared to teach their course as a result of the Institute and were much clearer about their course direction and course objectives. They reported that their courses were better-integrated, more systematic, and well thought out. Not all of the syllabi examined, however, exhibited these traits. This points to the need to provide additional focus on these key areas within the future application process and Institute curricula. The rubric, once properly vetted with the Evaluation Working Group will become a useful tool for both evaluation purposes and faculty training purposes. While it is clear that the Institute had impact on the design of individual courses, (evidenced by the redesigned course syllabi and increased use of the research libraries by undergraduates), in the future, the Steering Committee hopes to broaden the impact of the Mellon Program to include not only individual courses, but a focus on key courses that will influence the curriculum as a whole.

In 2003, the review and selection process for the Mellon Fellows, resulted in three projects identified for potentially broader impact and special evaluation/assessment attention. From these, one was selected.

Ruth Tringham, a professor in Archeology and 2003 Mellon Fellow, was interested in restructuring her course curriculum, and this provided us with an opportunity to pilot a methodology for collecting pre- and post- course longitudinal data. This faculty member has taught the same large enrollment course required for the major, for a number of semesters, and her course had been selected as a case example in the campus's *Educational Effectiveness Report* for the accreditation process. Having prior experience with the course, she was well positioned to compare student performance in the restructured course environment to previous results. The reinvention of large enrollment courses is a major priority for undergraduate education at Berkeley. The selection of Ruth Tringham's large course was a deliberate choice to gain experience with inquiry-based learning, the use of library collections, and assessment of student learning in such settings.

Impact of Mellon on student learning

Instrument

- Pilot pre- and post-tests of students enrolled in Anthropology 1 (Fall 2003)

Question areas

The student pre- and post-tests piloted in Anthropology 1 involved self-reports from students as to the perceived importance of research skills to their success in the class; changes in students' strategies for gathering information; and their ratings of their own proficiency in research activities, information gathering behaviors, and research abilities. Our intent was to measure the results gathered at the beginning of the class to those at the end of the class and to determine if changes could be attributable to the course instruction and assignment.

Planning for continuous improvement

The pilot study of the survey of students in Anthropology 1 was useful in revealing student perceptions along several dimensions prior to taking the course and after taking it. We deliberately used this course to test a pre and post survey. In retrospect, a survey of this sort seems to be most useful at the individual course level. At the Institute level, its usefulness diminishes because of the lack of a shared set of learning outcomes across the various Fellows' courses. Individual Fellows will focus his/her assessment on outcomes related specifically to the course level, discipline, and the type of students enrolled in the course. These diverse focal points make large-scale evaluation of impact based on student learning outcomes extremely difficult via a common survey. Administration of such a large-scale survey is also difficult, given the resources available for evaluation. Use of online survey software might be one solution, though this too requires significant focus on incentives and motivation to encourage the students to take time to complete the survey. An alternative approach might be to split the Assessment effort into two separate initiatives (program evaluation and assessment of student learning) and assign sufficient resources to accomplish each.

Assessment efforts during the pilot project have resulted in the collection of an enormous amount of data, too much to be comfortably analyzed, digested, and acted upon by the current Steering Committee and Project Partners. In the future, we will need to curb our ambitions with respect to the collection of assessment and evaluation data. We will limit our efforts at gathering data to those that can be reasonably digested and acted upon by the Project Partners and in light of the competing demands on their time.

Communication | Collaboration

Following the 2003 Institute, an Institute de-briefing meeting was held and follow-up survey was administered to the Project Partners which allowed us to identify approaches for communication and administration that would improve and sustain our collaborative relationships through Year Two of the grant and into the future.

A listserv was initially created for the Project Partners and Institute Facilitators. Following the 2003 Institute, it was expanded to include the 2003-2004 Mellon Fellows. The Institute's web site, created in Spring 2003, was re-designed twice in 2004 and continues to evolve as new materials

are added. It has become, among other things, a central archive for the revised syllabi and assignments crafted by all of the 2003 Mellon Fellows.

In 2002-2004, we spent only \$563 of the collaboration budget line, covering costs for an organizational development consultant to facilitate a March 2003 collaboration meeting. We spent the remaining collaboration funds in 2003-2004 on seven lunchtime discussion events for the 2003 Fellows, where they continued to develop as a cohort, encourage one another, brainstorm on a range of topics, and share their personal challenges and successes.

Finally, we hosted a campus-wide Mellon Collaboration event in May 2004. The event was designed to welcome the incoming 2004 Fellows and introduce them to the 2003 cohort, celebrate the initiatives and accomplishments of the 2003 cohort, spotlight the successful work and experiences of two of the 2003 Fellows in particular (Professors Barbara Abrams, Epidemiology, and Ingrid Seyer-Ochi, Education), and to generally promote the Mellon Project and Institute more widely to the campus. In addition to the Fellows and a range of Library and Project Partners, campus Department Chairs, prospective Fellows for 2005, and Deans were invited to attend the seventy-five person event. The event succeeded in meeting its dual objectives of strengthening the Mellon community on the campus who will serve as change agents within individual home departments and celebrating the merits of the "Mellon approach" to undergraduate teaching and learning.

Impact on Project Partners

The Division of Undergraduate Education

The Mellon grant provided an opportunity to extend the cross-unit collaboration begun in 2002-2003 with the development of the Mellon Faculty Institute on Undergraduate Research and the Council of Academic Partners (CAP), composed of the core Mellon Project Partners and including other faculty development units across the campus. CAP serves as a permanent advisory group to the Vice Provost for Undergraduate Education.

The Council of Academic Partners has continued to partner in several other campus-wide events and projects including the Fall New Faculty Orientation Program, a Spring 2004 event entitled "Personalizing the Large Enrollment Course" (with 200 participants) and the Presidential Chair Fellows Program mentioned earlier in this report. By increasing the visibility of the many faculty development units on campus, CAP co-sponsorship of these high profile events is expected to continue to foster the establishment of stronger partnerships between teaching support units on campus and campus faculty. CAP continues to be an important venue for communication and collaboration across unit silos as well as an important advisory group (via the Vice Provost) to the Chancellor's Cabinet and to the Council of Deans on matters concerning the teaching and learning mission of the campus.

Building on the work of the Mellon Project, the Vice Provost for Undergraduate Education, working through CAP, is developing a new "Teaching and Learning Initiative" for Berkeley and has also initiated campus conversations on coordinating assessment activities on the campus.

Office of Educational Development

OED, a unit within the Division of Undergraduate Education, has developed an increased understanding of the other Project Partner units' operations. It continues to explore effective ways of structuring collaborations, both at the unit level and at the interpersonal level, which at a decentralized campus such as Berkeley is the most effective way to generate change. The Mellon project has put the infrastructure and relationships in place that reduce planning time for OED projects.

The Partners' work, facilitators' experiences during the Institute, and Fellows' evaluations have all provided valuable information that OED has applied to the new Presidential Chair Fellows program which will continue in the 2004-2005 academic year. Most of the participants in the Mellon Institute brought considerable teaching expertise along with their enthusiasm, learning from each other as well as from the facilitators, supporting our assumption that bringing instructors together across disciplinary lines in a collegial setting is an optimal way to bring about change. In addition, the ideas and innovations generated during the Institute have improved the OED Faculty Development Coordinator's knowledge base of how courses can be improved. He continued to use this knowledge while helping faculty improve their teaching.

The Mellon project has helped to demonstrate that the best way to effect change in the culture of teaching at Berkeley, both with individual faculty and at the departmental level, has been to bring small groups of faculty together across departments to discuss common concerns and pursue a common agenda. Mellon Fellows have taken what they have learned back to their departments and helped to create a critical mass to leverage change in the culture of teaching. In addition, the increasing prestige and selectivity of Mellon Fellowships have signaled to the campus the importance of teaching undergraduates and incorporating inquiry-based learning in the curriculum, at the same time supporting the Division of Undergraduate Education's mission.

Educational Technology Services

Educational Technology Services (ETS), a unit within the Division of Undergraduate Education and one of the Mellon Project Partners, has worked one-on-one with the 2003 Mellon Fellows who wished to employ technology within their Mellon re-designed courses. ETS assisted these Fellows in creating course web sites, mastering presentation software for use in the classroom, videotaping faculty/student forums, and making these digital forums accessible via the Web.

This will become an area of increasing focus in 2004, since so many of the large enrollment, lower division courses targeted in 2004 and subsequent years (to widen the impact of the "Mellon philosophy" on undergraduate education at Berkeley) will make use of technology in a variety of new ways. In this way, the Institute will continue to develop faculty mastery and use of technology in the service of pedagogy, and dovetail with a larger campus collaboration, the e-Berkeley initiative. E-Berkeley is dedicated to transforming the way in which the university operates, including streamlining access to course information and content and the creation of customized digital portals.

The Graduate Student Instructor (GSI) Teaching and Resource Center

The GSI Teaching and Resource Center, a unit within the Graduate Division and one of the Mellon Project Partners, has worked one-on-one with the 2003 Mellon Fellows who taught courses with GSIs. The Center assisted these Fellows in considering ways to rethink the traditional discussion section, making it a site in which to foster undergraduate research skills rather than simply a place in which lectures get reviewed. The Center has also worked with faculty to assess mentoring and training needs of GSIs as they guide and evaluate student research.

This will become an area of increasing focus in 2004, since so many of the large enrollment, lower division courses targeted in 2004 and subsequent years (to widen the impact of the "Mellon philosophy" on undergraduate education at Berkeley) are delivered through the efforts of GSIs. In this way, the Institute will continue to strengthen the important role that faculty play in the professional development of GSIs and will encourage mentoring practices that are consistent with the newly revised Graduate Council Policy on the Appointment and Mentorship of GSIs.

The Research Library

The Mellon grant continues to be a catalyst for introspection about the future role of the University Library at Berkeley. The Library, like other research libraries, has traditionally cited its extensive collections and range of subject librarian experts as hallmarks of success and stature. The University Library must continue its visioning of the educational role of the library and librarians on the campus in the coming years. The challenge continues to lie in developing staff who are well versed in syllabus and assignment design and able to collaborate in the curriculum design process and beyond that, to perform these functions on a scalable and sustainable level. Cultural change of this sort is highly complex and difficult to implement and it is expected that such a cultural change will take years to accomplish. To develop a culture of instruction within the library requires the redesign of communication structures between areas of subject expertise and instructional expertise, the creation and support for related professional development for library staff, and the ongoing development of an overarching vision for all instructional activities within the University Library. For the first time, this year the evaluation of non-instruction librarians has required statements about instructional goals and activities from candidates under review as well as from the Head of Instructional Services.

Grant Planning

Lessons learned in this two-year pilot grant greatly influenced the direction of the newly funded four-year grant. Although grant planning may seem to be part of the second grant, and not this one, the grant planning process significantly strengthened the campus collaboration which is a centerpiece of this pilot. The planning process required in-depth analysis of the evaluation results, tough discussions about what worked and what didn't, and strategic thinking about how to extend extremely limited resources to achieve the greatest impact. The need to focus on building a sustainable infrastructure forced us to think about our own unit commitment and how we can organize ourselves better. Discussion about scalability pushed us to draw upon expertise within our units and provide ways for them to collaborate.

During several stages within the planning process, significant work went into identifying key courses and departments that it made sense to target for this and subsequent year's recruitment (see Appendix E) because of their potential to provide scalability to the project. The recruitment strategy focussed on high impact departments, programs and courses as much as it did individual faculty. The Library's Head of Instructional Services (a member of the Steering Committee) completed a comprehensive review of the course catalog, identifying high impact programs and courses. Co-principal Investigator and Vice Provost for Undergraduate Education, Christina Maslach, and Patricia Iannuzzi, Chair of the Steering Committee, met with targeted department chairs and deans, encouraging them to recommend particular courses and instructors for the Mellon Institute and to consider instruction and curriculum reform more broadly within their departments. In tandem, the Vice Provost sent a campus wide email to all Academic Senate faculty using the campus' CalMail system announcing this opportunity, explaining its relationship to other current campus priorities, and inviting their participation. The Project Manager responded to all inquiries about the grant, Institute, and application process. All of this was done in order to build scalability and sustainability into the project and to increase the program's impact by reaching the maximum number of undergraduates during the course of their studies at the University.

Lessons learned about the Institute also influenced grant planning. Decisions about 2004 Institute dates and content, based on an analysis of extensive evaluation data available on the 2003 Institute, were made by the Institute Planning Group and approved by the Steering Committee.

- Sessions were designed to employ active learning strategies that would model a range of approaches the Fellows might use in their own classes.
- Session leaders were called "facilitators" rather than "presenters" or "experts" to respect the experience and expertise that the Fellows themselves brought to the table.
- Facilitators were drawn from the Berkeley campus to test our ability to provide a sustainable model of faculty development with local resources.
- 2004 session topics and arrangement were informed by the 2003 post-Institute evaluations (by Fellows and Partners) and by the available expertise in various units and strove to refrain from creating isolated products and disjointed segments.
- Each day, after the first day, included a morning "Review and Preview" session facilitated by the same person all three weeks to create continuity and address lingering issues.
- Each day included an afternoon "Homework" session facilitated by the same person all three weeks to explain and answer questions about the readings and assignments for the next day.
- Each day included a group coffee and group lunch for informal sharing among the Fellows and between the Fellows and the Institute's Facilitators and guest presenters.

A major lesson learned from the pilot was that institutionalizing the Library Partners was not enough to ensure post Institute support and smooth course implementation. Staff from the various partner units needed to be brought together in some way to learn from each other, and to focus their expertise on each course. Experiences from the library partner teams influenced the recommendation of cross unit Implementation Teams (I-Teams) for the second grant.

Future Plans

In December 2003, we were awarded \$749,000 over the next three years to continue our work and explore ways of developing the program with particular emphasis on issues of scalability and sustainability. To these ends we will pursue the following activities:

- We will continue to support campus projects related to teaching and learning through the Council of Academic Partners, including the New Faculty Orientations, Presidential Fellows Programs, e-Berkeley symposia, the Teaching and Learning Initiative, and campus-wide assessment.
- We will continue to cultivate and extend the collaboration aspects of the project among the Project Partners, extending them to the next level down within our organizations, to build a base for sustaining and scaling Mellon changes in teaching and learning on the campus.
- We will seek to institutionalize Mellon inspired curriculum changes within large enrollment, lower division courses, and high impact departments by continuing to systematically identify and cultivate relationships with individual faculty members, department chairs and deans and strategically fund curricula changes within targeted courses and departments.
- We will continue to host periodic collaboration events for the Fellows and more widely on campus to promote scalability of Mellon changes by inspiring others within the academy.
- We will continue to collect assessment and evaluation data, but with an eye toward designing methods and systems that are relatively easy to implement and will therefore prove more easily scalable.
- We will reduce the amount of the fellowship award to individual Fellows and to departments, allowing us to fund additional fellows over time.
- We will make a concerted effort to involve Graduate Student Instructors (who are heavily involved in the delivery of large enrollment courses on the campus) in these curricular changes, thus increasing the base of Mellon trained instructors beyond the Mellon Fellows cohorts.
- We will continue to focus on the development of scalable assessment and teaching tools.
- We will launch a program of cross-Partner implementation teams in association with future Institutes, to share expertise among project participants and extend our capacities to advise and support the Fellows over time.
- To increase the program focus on the impact of Mellon courses on student learning, we will divide our assessment and evaluation efforts into two parts, overall project evaluation and assessment of student learning, and assign resources to each of these distinctive focuses.
- We will continue to publicize our efforts, and to promote our vision on campus and within the donor community in the hopes of raising funding for future efforts

Conclusion

We continue to be grateful for the support of the Andrew W. Mellon Foundation, which has enabled us to experiment at Berkeley with a campus strategy to:

1. forge a campus collaboration of academic partners that can be a catalyst for change, working together to provide support and create infrastructure for faculty and other instructors

2. develop and nurture a cohort of instructors dedicated to a new way of teaching, who become change agents within their departments and throughout the university.

We have continued to make significant progress on both fronts during the second year of the Pilot Project and look forward to extending the project's impact on the campus and nationally over the next four years with our new grant.

Appendices

- A. Budget Summary
- B. 2003 Mellon Institute – Pre-Institute Fellows Survey Results
- C. 2003 Mellon Institute – Mellon Faculty Institute Evaluation
- D. Scoring Rubric for Course Syllabi
- E. Possible Courses for Mellon 2004-2005
- F. Wendy Edelstein. “Improving Undergraduate Research Skills: An Innovative Grant Program Coaches Faculty in Techniques for Enriching This Key Attribute of Academic Success.” The Berkeleyan, volume 32, Number 1 January 21, 2004
(http://www.berkeley.edu/news/berkeleyan/2004/01/21_mellon.shtml)
- G. Mellon Library/Faculty Fellows for Undergraduate Research – Fact sheet
(http://library.berkeley.edu/MellonInstitute/mellon_facts.pdf)