

EXTENDING *REQUEST* TO ARTICLES IN CDL-HOSTED DATABASES: AN ASSESSMENT OF ISSUES AND POTENTIAL IMPACTS

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EXECUTIVE SUMMARY

Introduction. The purpose of this report is to present data from which inferences may be drawn about the impact implementing *Request* for articles is likely to have on borrowing and lending workloads for “photocopies in lieu of loan” or “non-returnables” in UC libraries. Implementing *Request* for articles means that any registered UC faculty member, graduate students, or staff member would be able to select an article citation from a CDL-hosted database and initiate an interlibrary request (subject to restrictions) with the same “*Request*” mechanism that now appears in the web version of the MELVYL Catalog.

Trends in UC intercampus lending and borrowing of non-returnables, 1992-1998. Data on interlibrary loan activity for non-returnables in the UC libraries are presented for the last five years. Overall aggregate increase in borrowing transactions within UC was nearly 50% during this period, but campuses were affected disproportionately. Lending turnaround standards (48 hours) were largely maintained. Rates of increase in transactions appear to be leveling off in the last two years. Net lender and borrower data are presented in the report and by campus in the appendices.

Trends in publishers represented by requests within UC. Data are presented on the date of publication and the publishers most frequently represented in UC article requests. These are analyzed and discussed with regard to the CDL publisher licensing program. The data suggest potential to further reduce requests as more current full-text articles are available online. Users will not be able to order articles that are available online. It will also be important to have these titles represented in PE and local OPACs.

Experience. UC patron initiated Request. Data are presented on the extent of Request use since its implementation in the MELVYL Catalog in January 1999 and on total interlibrary requests by campus since its introduction. Interlibrary loan requests via *Request* constitute a small portion of total requests thus far. Early data do not suggest immediate overall increases in interlibrary borrowing requests, but there has been limited promotion of *Request* during the initial months.

User survey. Extending Request to articles was one of three most frequently cited desirable enhancements cited by an April 1999 patron survey on *Request*.

Relevance of experience in other systems. Unique features of the UC environment are enumerated. A full report on the most similar experience investigated (British Columbia’s GODOT at Simon Fraser University) is presented. Shorter reports on other related experiences and planning efforts are given, including the Florida Center for Library Automation.

Policies for proposed article Request. The policies recommended by SOPAG and endorsed by the University Librarians for article *Request* are listed. They are designed to mitigate workloads.

Copyright compliance. It is understood that it is a campus responsibility to follow CONTU guidelines and make requisite royalty payments.

How Request for articles will work. A major challenge in rejecting Requests because of local holdings and in assuring that fill rates do not deteriorate from the current 70%, is to determine automatically whether there are indeed holdings at the volume and issue level for a given serial record. The reasons for non-fills with current practices are reviewed with the presentation of several UC samples. Not holding a specific volume or issue is a substantial factor in lenders not being able to fill requests for non-returnables. Results of the planned automated method are

presented. Automatic “parsing” of holdings should equal current practice. The automated method may even exceed current levels of accuracy.

UC costs for borrowing/lending non-returnables. Available cost data are presented for the purpose of constructing various prediction models.

Implications for UC libraries. The purpose of this report is to inform decision-making. It is difficult to predict the actual effect on overall volume of introducing *Request* to the CDL-hosted databases. There is no other system with UC’s history of resource sharing, locally-mounted databases with a command-driven *Request* feature, that restricts only to faculty, graduates, and staff, that has as much material licensed as we expect to by 2000. Financial impacts can be estimated, but they depend upon assumptions about increases in volume and adoption rates for *Request* from CDL-hosted databases in lieu of other methods for requesting articles.

Various scenarios are modeled to predict cost increases and decreases in the aggregate and for some specific campuses. The models could be developed with infinite variation depending on assumptions. A midrange model (e.g., a 50% increase in lending articles within UC and a 25% adoption of *Request* method for existing borrowing requests) is estimated to have a systemwide net effect of +\$139,933 in transaction costs. When all of the factors and data are considered in conjunction with the enthusiasm for the potential of article *Request*, they do not seem to suggest a need to delay implementation.

PLANNING TIMELINE FOR ARTICLE *REQUEST*

Ongoing	Extension to articles included in PIR Project Team's planning
November 98	SLASIAC recommends article <i>Request</i> as priority for further development
January 99	<i>Request</i> for books in MELVYL Catalog begins Technical planning for implementation of <i>Request</i> in CDL-hosted abstracting/indexing databases begins
April 99	SOPAG recommends policies for articles <i>Requests</i> ; University Librarians endorse same
June 99	Policies and mechanisms for article <i>Request</i> reviewed and discussed at Update sessions Project Team's report on issues and potential impacts distributed
July 30, 1999	SOPAG recommends implementation date for article <i>Request</i>
August 99	University Librarians review recommendation
January 2000	Earliest date for implementation

EXTENDING *REQUEST* TO ARTICLES IN CDL-HOSTED DATABASES: AN ASSESSMENT OF ISSUES AND POTENTIAL IMPACTS

The PIR Project Team
June 25, 1999

I. Introduction

The purpose of this report is to present data from which inferences may be drawn about the impact implementing *Request* for articles in the CDL-hosted databases is likely to have on borrowing and lending workloads for “photocopies in lieu of loan” or non-returnables in UC libraries. There is no other system that has done exactly what we are poised to do in an environment that replicates that of the UC with its relatively strong library collections, long history of a union catalog and intercampus resource sharing, and its journal licensing program. The report presents UC historical data, impacts of similar services in other systems, and prediction models for article *Request* in UC.

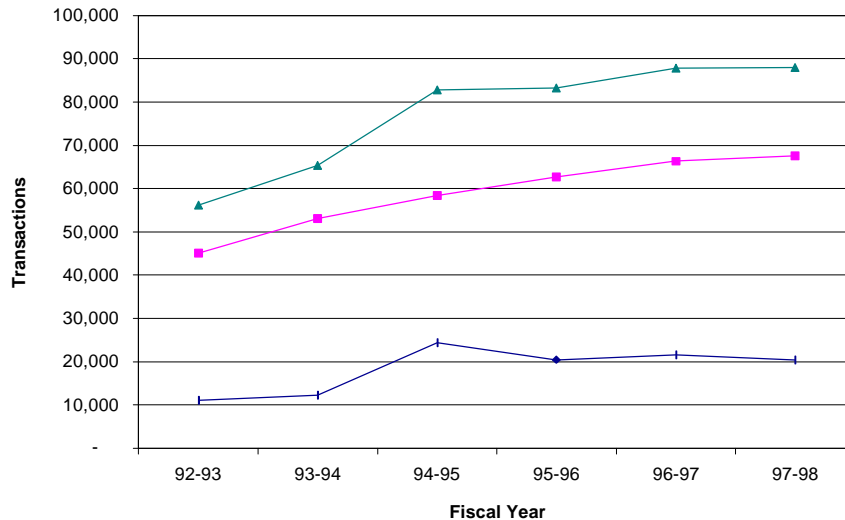
The proposed extension of *Request* to articles means that any registered UC faculty member, graduate student, or staff member will be able to select an article citation from a CDL-hosted article database¹ and initiate an interlibrary request with the same *Request* “button” that now appears in the web version of the MELVYL® Catalog. Such a request will be processed through the *Request* Resolution Service that was implemented in January 1999.

¹ CDL-hosted article databases include MEDLINE, Current Contents, ABI/Inform, BIOSIS, INSPEC, MAGS, Computer Articles, PsychInfo.

II. Trends in UC intercampus lending and borrowing of non-returnables 1992-1998.

Five-year history of UC non-returnables: the "University of California Library Statistics, Table V, Interlibrary Transactions: Photocopies in Lieu of Loan" tables for 1992/93 through 1997/98 are in Appendix 1.

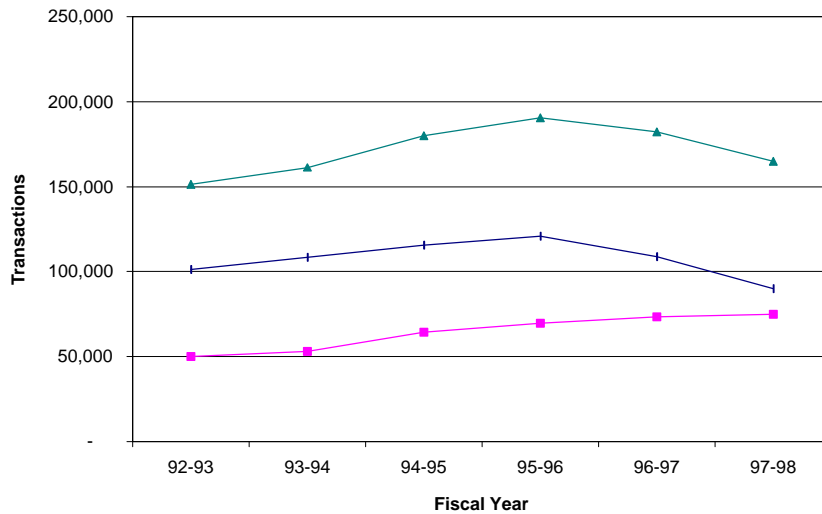
**UC Borrowing Activity - Photocopies
1992/93 - 1997/98**



Date: 23 June 1999
Data source: G. Lawrence
Compiled by: T. Dearie

—▲— Total Photocopies —■— UC Photocopies —+— Non-UC Photocopies

**UC Lending Activity - Photocopies
1992/93 -1997/98**



Date: 23 June 1999
Data source: G. Lawrence
Compiled by: T. Dearie

—▲— Total Photocopies —+— Non-UC Photocopies —■— UC Photocopies

Non-returnables borrowed from UC libraries by UC libraries

<u>92-93</u>	<u>93-94</u>	<u>94-95</u>	<u>95-96</u>	<u>96-97</u>	<u>97-98</u>
45,116	53,002	58,387	62,722	66,332	67,569
+19.7%	+17.5%	+10.2%	+7.4%	+5.8%	+1.9%
5-year increase:				+49.8%	
Ave. yearly increase, 1992/93 to 1997/98:				+8.6%	

Turnaround time

During these years of increasing workloads within UC, the UC lending standard of supplying photocopies within 48 hours has largely been met and even enhanced over the years. The sample times below, however, represent relatively limited “snapshots”. From the series of UC “Turnaround Time Studies” (TAT):

Filled UC photocopies; filled by lender within 48 hours²

91.4%	TAT sample 1996/97
88.1%	TAT sample 1995/96

Campus data

See Appendix 2 for the five-year trends for non-returnable borrowing and lending for each individual campus. Rates of increase in borrowing activity varied substantially amongst campuses and probably reflect major cancellation in the early 1990s.

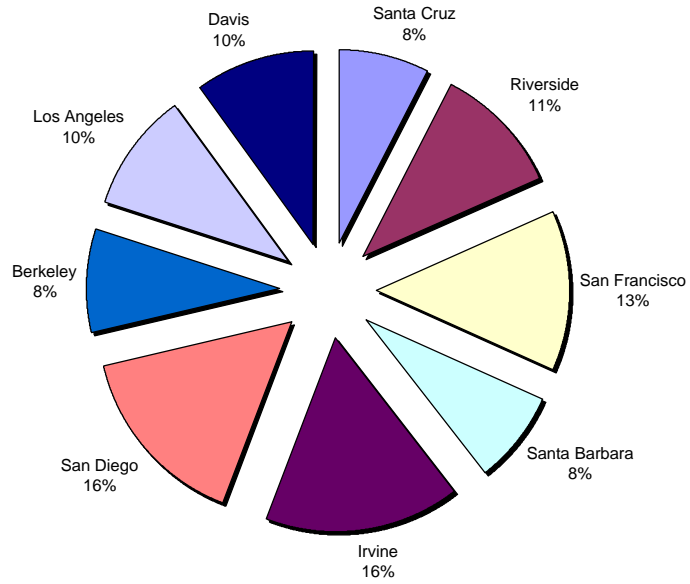
Campus increases in non-returnable borrowing, filled within UC, 1992/93 to 1997/98

San Francisco	+194 %
Los Angeles	+107 %
Davis	+ 65.1 %
Irvine	+ 45.2 %
San Diego	+ 37.5 %
Berkeley	+ 31.6 %
Santa Cruz	+ 22.8 %
Santa Barbara	+ 17.5 %
Riverside	+ 15.1 %

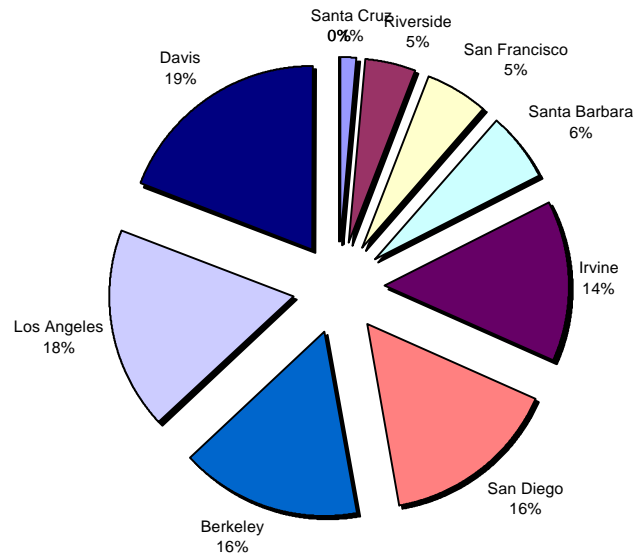
The most recent proportionate data (per cent lending, percent borrowing of total for each campus) appear on the next page.

² Data summarized by T. Dearie, 6.99

**Non-Returnable Photocopies Received
From Other UC Libraries
Percent of Total Activity
1997/98**



**Non-Returnable Photocopies Lent
to Other UC libraries
Percent of Total Activity
1997/98**



External borrowing

Non-returnables borrowed and received from *external* sources

<u>92/93</u>	<u>93/94</u>	<u>94/95</u>	<u>95/96</u>	<u>96/97</u>	<u>97/98</u>
11,022	12,290	24,398	20,468	21,495	20,418
+7.8%	+11.5%	+98.5%	-16.1%	+5%	-5%
5-year increase:				+85.2%	
Ave. yearly increase, 1992/93 to 1997/98:				+18.8%	

The rate of increase in UC-supplied non-returnable borrowing appears to be declining, as does the rate of increase in externally supplied articles. The 5-year increase in total (UC and external) non-returnable borrowing was 56.7% with an average yearly increase of 9.9% per year.

III. Trends in publishers represented by requests within UC

Interlibrary loan of non-returnables has experienced a greater rate of increase than returnables in recent years. Recommended by the Hughes report³ and endorsed by the Library Planning and Action Initiative report, the primary strategy for UC resource sharing of journal articles is to license electronic versions of titles subscribed to within UC. The Science, Technology and Industry Collection Task Force has recommended publisher priorities for licensing after conducting an extensive faculty survey on all campuses. Publishers which are licensed systemwide or in negotiation for expected completion by 2000 include:

Licensed:

- American Chemical Society
- Association for Computing Machinery
- Elsevier (includes Pergamon, North Holland, etc.); acquired Cell Press, Current Biology
- IEEE/IEE
- Johns Hopkins University Press (Project Muse)
- JSTOR (various, 3 years and older)
- Science

In negotiation:

- Academic Press/Saunders/Churchill Livingstone
- American Institute of Physics
- Blackwell Science
- Company of Biologists
- Institute of Physics
- Kluwer/Thomson/Chapman & Hall; acquired Plenum
- Springer (trial)
- Wiley

Next priorities

Include:

- Lippincott/Williams & Wilkins/Rapid Science (Current Opinions)
- American Society for Microbiology

³ *University of California: a Study of Interlibrary Loan Operations Report to Library Council*, March 1996, K. Scott Hughes Associates.

Sample of UC borrowing requests by publisher

A sample of 32,435 UC borrowing requests is large but it did not include Davis OCLC data, DOCLINE (medical libraries) or Science Fax project requests. During the sample time, trials were in progress for Elsevier, Kluwer, and Springer (linked at article level in CDL abstracting/indexing databases); Academic was licensed by several campuses and also linked to citations in the CDL-hosted databases. These online resources may already have had a mitigating effect on intercampus requests for articles from these publishers. The licensing program will not immediately include older materials, except for JSTOR titles, which are also widely held in paper. The nearly 75% of requests for current materials confirms the importance of licensing current journals for systemwide access.

OCLC non-returnable borrowing records for UC from August 1998 through April 1999⁴

Total sample:	32,435	
Published within last 5 years:	24,178	74.5%

Published within 5 years by selected publisher (see Appendix 3 for list of top 45 publishers)

Elsevier and Current Biology	1,769	5.4%
Springer-Verlag	531	1.6%
Academic/Saunders/Churchill-L	399	1.2%
Blackwell	318	1.0%
Plenum (acquired by Kluwer)	305	.9%
Wiley	291	.9%
Lippincott/Williams&W/Rapid Sci	221	.7%
AIP, IEEE, ACS, IoP	167	.5%
	4,001	12.3%

In article *Request*, requests for articles with available, online full-text versions will be blocked if the license is for systemwide access, or if the CDL Directory shows electronic subscription coverage for the user's campus. Every effort will be made to effect links at the article level for publishers currently in negotiation, by January 2000. Not all publishers have five years of articles available, but there is potential to reduce requests for articles by 10-12% in the near future. Because of the trials mentioned above, requests may already have been avoided during the sample period. In addition, users of the CDL-hosted databases will be alerted to the potential availability of an ASCII version of the article they seek in the IAC databases⁵. Because article *Request* will at least initially represent a minority of interlibrary requests for non-returnables, it will also be important to have catalog records that reflect the availability of online holdings in PE and local OPACs so as to alert interlibrary loan staff.

⁴ From data collected by Tammy Dearie and analyzed by Martha Fanshier, May 1999.; excludes Davis.

⁵ MAGS, Computer Articles

IV. Experience

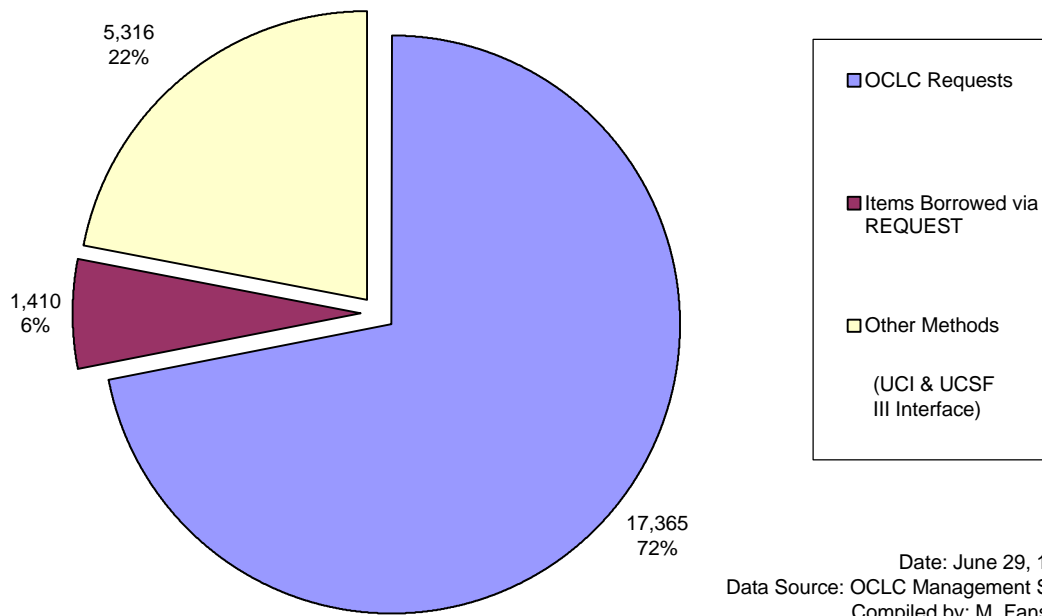
a. **UC – patron initiated *Request*** was implemented in the web version of the MELVYL Catalog for books January 20, 1999. It is too early to predict the eventual impact of *Request* on intercampus borrowing with only three to four months of data and limited promotion of the service. The *Request* button appeared on January 20 along with an announcement on the CDL web page (which also debuted January 20). However, campus libraries reported limited publicity for the service in the initial months. Most survey respondents in April (see below) had discovered the service through the screen button.

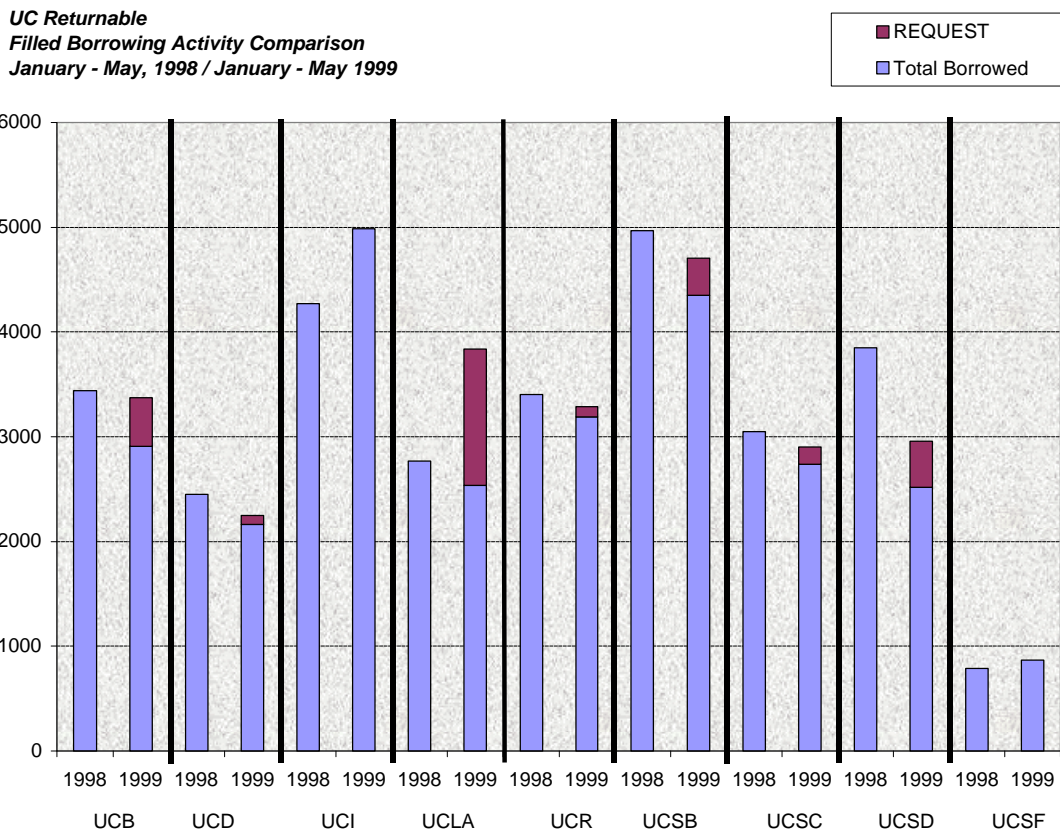
The following data suggest that use of *Request* has not immediately or dramatically replaced traditional methods of making interlibrary requests (through telnet *Request*, in person, via web forms, e-mail, etc.). The proportion of borrowing requests made via *Request* is difficult to identify with precision because the interface allowed some *Requests* to go to Review files or via email to ILL borrowing units rather than to be handled automatically (“OCLC Direct”). It is not possible to identify all of these from the *filled* OCLC data. OCLC data are for those *Requests* handled automatically through OCLC Direct. The actual proportion of interlibrary book requests initiated by the button is probably about 12%.

Tables & Charts [Jan-May 1999 data] appear below.

UC Total Returnable Filled and Unfilled Borrowing Activity via OCLC, February - May, 1999

Total: 24,091





Notes: The following campus-supplied data are not available: May '99 data for UCLA; May '99, March '99 and April '98 and from UCD Shields library. Because of Request interface with Innovative ILL module, we cannot identify proportion initiated by Request at Irvine and San Francisco

Date: June 25, 1999
Data Source: 1) Campus Supplied
2) OCLC ILL Direct
Compiled by: C. Holdeman

Attendees at the *Request* Update Sessions in June reported user demand for extending the service to articles. The more article-intensive libraries (e.g., medical libraries) had deferred promotion until article *Request* will be available. Staff also reported that use of the new *Request* feature might be constrained by continued use of telnet to search the MELVYL Catalog and CDL-hosted databases.

User survey

Respondents to an April 1999 patron survey covering Phase I of *Request* reported strong and consistent satisfaction with the service. The vast majority of respondents believed that *Request* made borrowing materials from other libraries convenient and faster. Satisfaction was uniform across patron groups (faculty, graduate students, and staff) and by campus. Extending *Request* to articles was one of the three most frequently cited desirable enhancements, along with patron self-checking of transaction status and increasing the daily limits on placing *Requests*.⁶

⁶ See www.cdlib.org/libstaff/sharedcoll/projects/pir for complete survey data.

b. Relevance of experience in other systems.

The Project Team attempted to identify other systems which may have implemented or considered implementing patron-initiated requests for articles from abstracting & indexing databases. There is no one environment identical to ours. Pertinent UC background:

- Long history of resource sharing with strong collections, union catalog, and early availability of abstracting/indexing databases
- The University of California is a single institution, not a collection of previously unrelated institutions
- Current focus on licensing electronic versions of all titles subscribed to within UC. (Requests for articles available online will be rejected).
- UC has a well-established Request through telnet searching of CDL-hosted abstracting & indexing databases. Eight campuses have used this feature, both for intercampus requests and local document delivery. However, it does require local registration and operating in command mode.
- UC implemented *Request* for books; experience suggests that dramatic ramp-up in volume is not an immediate outcome, although by January 2000, there will have been a full year during which users gain greater awareness of *Request*.
- The proposal for article *Request* is to restrict it to faculty, graduate students, and staff.

1) *British Columbia's article request system, GODOT* (Generalized Online Document Ordering and Texts) appeared to be the most relevant system to examine more closely (see Appendix 4 for details). It was developed by Simon Fraser University (SFU) for the Council of Prairie and Pacific University Libraries and is based on a prior text-based system called Online Journal Access and Citations. Users can make requests from citations in more than 30 locally mounted and external databases (including a number of HW Wilson databases in all fields, and *Current Contents*). The objective of GODOT is to provide users with one place to go both to search periodical databases and to request a copy of a desired journal article, while minimizing the need for ILL staff intervention. Instead of an automatic match to a lending library, however, the user must look at periodical holdings and select the most appropriate source from amongst as many as 40 libraries. Because of the wide range in holdings detail in the union database, programming could not accommodate a search for particular issues or volumes. If no holdings are available, the request is sent directly to the home library's ILL system. These constituted 16% of the requests initiated through GODOT.

Over 25 Canadian university and college libraries are using GODOT, but we focused our inquiry on the experience of research library Simon Fraser University. University of British Columbia is not yet using GODOT for intercampus borrowing. SFU has 15,000 students and offers undergraduate and doctoral degrees with a strong emphasis on distance education. *Undergraduates may use the service; their use accounted for 53% of SFU's requests.*

Simon Fraser's borrowing requests have more than doubled since implementation of GODOT's predecessor OJAC (Online Journal Access and Citations) in 1993/94.

Simon Fraser University's non-returnable borrowing requests

1993/94	8,500
1997/98	20,750

The staffing impact was as follows: SFU had 3 full-time staff members in ILL and plan to hire a 4th full-time member, in place of .63 FTE temporary staff. SFU has been able to process twice as many borrowing requests with a slight increase in its ILL staff complement of about .25 temporary

FTE since 1997. Their lending has increased during that period by 45%, but only a fraction is for GODOT requests. Points mentioned by SFU staff in realizing these efficiencies:

- Staff do not verify user or citation
- Processing has been shifted to lower level staff. GODOT has “significantly” reduced unit cost per request.

2) *Novanet* (Nova Scotia) has a patron-initiated request for articles. Journal article requests can be made, but not directly from abstracting & indexing databases. From the journal title, the user fills in the citation. There is also a \$2 charge to users per request (for both books and journal articles).⁷ The service did not seem similar enough to warrant further examination.

3) *TRLN* did a trial patron initiated request for both books and journal articles for three weeks. Of the 1,108 requests received, most were for serials. The “automated intelligence” did not decipher various holdings information well. The service was not implemented.⁸

4) *Florida Center for Library Automation* has offered an ILL request form in 10 OPACs and the 25 locally mounted abstracting & indexing databases (with more than 27 million records) for over a year. The request is currently sent as an email message to the ILL department chosen by the patron from a list. These are mediated requests and no attempt is made to prevent the request based on existence of local holdings. OCLC is then used for fulfillment. “So far, there hasn’t been any major objection to the service based on volume of activity.” There was some concern about not checking and blocking requests if the library held the title. Some libraries use the system for cross-campus delivery requests and would not want requests blocked locally (note: UC’s *Request* will have the ability to turn such a request into a local document delivery). “Availability of 720 Elsevier titles might be helping to alleviate the load along with access to many more full-text resources via FirstSearch”.⁹

5) *OhioLink* has not implemented patron-initiated request for articles and has no plans to do so. Patron-initiated book requests generated 10-20 times the book interlibrary loans over traditional interlibrary loan. However the twenty-two institutions in OhioLink have very disparate collections and no history of resource sharing *with a union catalog* in place. OhioLink’s system is available to undergraduates.

OhioLink’s User Breakdown

Undergraduates	34%	0.7 borrows/FTE
Graduate students	40%	5.4 borrows/FTE
Faculty/staff	26% ¹⁰	n/a

OhioLink is generating almost 800,000 downloads from UMI *ProQuest Direct* per year. OhioLink is not implementing article requests because they do not think they could accommodate the workloads and maintain timely delivery. They are also concerned about royalty costs and the visibility to the publishing sector of an automated system for ordering articles amongst institutions. Is this a “degree of organized cooperation” that exceeds the original intentions of laws and guidelines.¹¹ In this regard, the University of California, “one university” may stand on a more firm foundation.

⁷ From e-mail from Bill Birdsall, May 5 and 6, 1999.

⁸ From e-mail from Mona Coutts, May 5, 1999.

⁹ Paraphrased and quoted from e-mail from Michele Newberry, May 5, 1999.

¹⁰ Extrapolated, not actually stated

¹¹ Paraphrased and quoted from e-mails from Tom Sanville, May 6,7,10, 1999

V. Policies for proposed article *Request*.

SOPAG recommended and the University Librarians endorsed the following policies for the implementation of article *Request*. They are designed to mitigate workloads as much as possible.

- Requests can be made only from CDL-hosted databases (MEDLINE, Current Contents, ABI/Inform, BIOSIS, INSPEC, MAGS, Computer Articles, PsychInfo).
- Available to faculty, graduate students, staff
- Users are limited to 20 article requests per day.
- Requests for articles with available, linked, online full-text versions will be blocked if the license is for systemwide access or if the CDL Directory shows electronic subscription coverage for the user's campus.
- Patrons requesting articles with potentially available ASCII versions or locally provided Internet versions will be alerted to this possibility from all databases (e.g., from MEDLINE, the user will be able to discover that MAGS contains full-text *JAMA* articles) so as to obviate the need for requests from these journals.
- Requests for titles/volumes held locally will be blocked or the user will be offered document delivery if applicable.
- The same load leveling will be applied to article requests as to book requests.
- Intercampus delivery will be to libraries via fax, ARIEL, and courier.
- Other existing UC interlibrary loan and circulation guidelines and policies as codified in the UC ILL Manual (<http://www.lib.ucdavis.edu/uc-ill/>) remain in place. These include Universitywide standards for fulfillment time for intercampus requests.
- *Not formally proposed/endorsed*, the system could alert patrons who are requesting articles in languages other than English and ask if they wish to proceed. This is one of the enhancements planned for the British Columbia system. "Update" attendees endorsed this feature.

[The policies do not yet address procedures for article citations with *no* UC holdings—whether to reject such requests or to send these requests to the home library's OCLC Review file.]

VI. Copyright compliance.

It is understood that it is a campus responsibility to follow the CONTU guidelines and make requisite royalty payments. This will be a cost factor if borrowing increases. Given the possible visibility of UC article *Request*, it is particularly important that the provisions of [Section] 108(g)(2) are followed by each UC campus library. SOPAG has charged the Resource Sharing Committee with examining procedures for tracking article requests by title and date. The PIR Project Team will particularly explore automated routines for same.

VII. How *Request* for articles will work.

The Resolution software will implement the policies listed above. The major challenge in blocking for local holdings and in assuring that article fill rates do not deteriorate from the current 70% is to determine whether there are indeed holdings at the volume and issue level. No system investigated has devised any automated way of doing this. The British Columbia system revealed that users generally recognize their local holdings but do not choose correct libraries when presented with lists of holdings. To put the mechanics of "parsing" serial holdings into

perspective, it seems useful to present some data on current practice in choosing a lender that actually holds the volume/issue needed to supply an article.

a. Non-fills in the current system.

UC interlibrary loan turnaround time data were collected during sample periods from 1991 through 1997. Fill rates from lending libraries (i.e., the ability to fill a request directed to the respective library) were collected but returnables and non-returnables are not distinguished. The non-fill rate was consistently about 30% in all of these “snapshots” of lending activity.

I have obtained the following samples of “reasons for non-fills” from UC libraries. Various assumptions and extrapolations are made since no sample measures exactly what we need.

1. UCLA sample from 1997/98¹²

Filled requests to UC:	22,621	[70% fill rate]
Unfilled requests to UC:	9,756	
Estimated unfilled requests for non-returnables to UC: ¹³	5,568	

According to UC Library Statistics, UCLA supplied 13,190 non-returnables (58% of UCLA’s total filled requests). UC turnaround data consistently revealed similar rates of non-fills for both journals and returnables. If the non-fill rate were distributed proportionately, 58% of the unfilled requests would be for journal articles, or 5,568.

Reasons reported in this sample that are specific and exclusive to the availability of journal volumes/issues include

Lack issue/volume or cancelled:	1,729	31%	[of 5,568]
Not yet received:	329	6%	
At Bindery:	336	6%	
Not found at cited reference:	195	3.5%	
<i>[note: article PIR should improve this rate because citations should be accurate]</i>			
Pages missing:	29	.5%	

Other reasons are not specific to journals, but if “not on shelf” is distributed proportionately, Not on shelf (58% of 1,673 = 970 17.4%

2. “UC ILL requests at UCLA, Primary reasons for non-fills, 1991/92”: Biomedical and Physical Sciences and Technology Libraries, whose majority of requests would be articles, reported “do not own (includes lack issue, not yet rec’d)” for 45% and 24% of the non-fills out of samples of 258 and 854 respectively.¹⁴

3. UC Davis “Survey of Unfilled Docline Lending Requests, July-October 1990” (not confined to UC): “Issue lacked or not yet received” was 38% (sample 528); repeated in February 1999: “Issue lacked or not yet received” was 41% (sample 169).¹⁵

¹² E-mail from Donna Gulnac, March 9, 1999

¹³ Extrapolated by authors, not reported as such by UCLA

¹⁴ Data from Sara S. Layne, January 25, 1993.

¹⁵ Data from Christine Dechoretz, March 18, 1999

4. UCSF tracks reasons for non-fills within UC and one would expect that most of their requests are for non-returns:¹⁶ They report

Lack volume/volume lost:	15%
Not yet rec'd:	8%
Not found as cited:	7% [see above]

These data suggest that a significant portion—from 22% to 45% of non-filled article requests can be attributed to the lack of a specific issue or volume. Two of these samples are from UCLA, which probably has the most complete and accurate holdings records in the PE database. Current practice does not include checking local integrated systems for serial check-in records. Practice may include checking MELVYL PE holdings but often does not; DOCLINE records may be more accurate than those in PE; OCLC records are not accurate at the holdings level.

b. Determining correct holdings through automatic “parsing”.

The goal of automatic parsing of the PE holdings is to equal or improve on the above outcomes, that is to equal or reduce the proportion of non-fills that can be attributed to “lacks issue or volume”. An analysis of MELVYL PE file holdings statements was performed by Mary Heath using a sample of 230 titles from telnet MELVYL requests (i.e., requests from the CDL-hosted abstracting & indexing databases) to test a method of automatically evaluating the holdings contents. See Appendix 4 for details. The method tested, which can be implemented by January 2000, is:

- Reject [or offer doc delivery] the request if the CDL Directory lists an electronic version that the patron is qualified to use and that includes the cited year.
- Examine the holdings for each potential UC lending location to obtain the first year of holdings, and, if the subscription is not currently open, the last year held [note that, if the subscription is currently open, the current year would be considered the last year held]. Reject [or offer doc delivery] the request if matched holding is local campus.
- If the cited year is greater than or equal to the first year held and less than or equal to the last year held, the location is included in the lender string of the outgoing request record.

Applying this method to the 2,009 holdings attached to the sample group of 230 requests produced correct results in 95% of the cases. In 1.3% of the cases, locations actually holding the volume were rejected, in 1.7%; the holdings were stated as “Current year only” and in 2% the holdings were listed as unreported (possibly indicating a series with volumes cataloged as separates). **In none of these cases would a request be generated to a library that clearly does not hold the volume/issue.** Of the 230 titles examined, there were no UC holdings for approximately 9% of the requests.

Further tests are being conducted to determine how accurately the statements in MELVYL PE file reflect actual holdings; early results suggest that actual holdings do not severely deviate from those in PE records. **In any case, the automatic parsing method should equal current practice even if MELVYL PE holdings are always checked and accurately interpreted.** The automatic method may exceed current levels of accuracy given that many requests must be sent without careful checking of PE holdings.

Call number and location will be attached to the article *Request*. Information sent from the Resolution Service to OCLC ILL Direct for article *Requests* will be very similar to that currently sent to the OCLC ILL Direct system for book *Requests* in Phase I. This information includes full patron and location data (including call number information), in addition to the bibliographic

¹⁶ E-mail from Edith Amrine, March 29, 1999

citation. The presence of call number information in the request will further improve efficiency in the lending process. In fact, the Hughes Report cited the presence of call number and location (produced by automated front-end software) in UCSD's lending requests as a significant factor in lowering the effort devoted to "initial processing of lending requests".¹⁷

VIII. UC costs for borrowing/lending non-returnables.

Cost data available.

ARL cost study of 1995/96¹⁸. Berkeley, Irvine, Riverside, and San Diego participated in ARL's Interlibrary Loan Performance Study in 1995/96. Costs for returnables and non-returnables are not distinguished. These costs include staff salaries and fringe benefits, network and communication (ARIEL, fax, OCLC, Internet, etc.), delivery, photocopy, equipment, software and maintenance, borrowing fees, and royalty payments. All figures represent per transaction costs:

	1995/96	Adjusted for 2000 at 3.2% per year
Borrowing		
ARL Mean	\$18.35	\$20.81
ARL Median	16.63	18.86
UCB	17.01	19.29
UCI	14.52	16.47
UCR	14.31	16.23
UCSD	12.61	14.30
Mean UC		16.57
Lending		
ARL Mean	\$9.48	\$10.75
ARL Median	8.14	9.23
UCB	9.82	11.14
UCI	12.51	14.19
UCR	8.83	10.02
UCSD	11.96	13.57
Mean UC		12.23

The Resource Libraries in the NN/LM Pacific Southwest Region (which handle primarily articles) projected \$8.74 per transaction (applying CPI to 1994 actual costs) lending in 1996. Applying 3.2% increases each year since, one might project the cost for non-returnable lending in 2000 at **\$9.91** per transaction. These costs include labor, benefits, supplies, equipment, delivery, and communication.

¹⁷ p. 31, *University of California: a Study of Interlibrary Loan Operations Report to Library Council*, March 1996, K. Scott Hughes Associates.

¹⁸ Extracted by T. Dearie from Jackson, Mary E., *Measuring the Performance of Interlibrary Loan in North American Research Libraries*, Washington, DC: ARL, 1998.

The UC HOPS ILL Subcommittee conducted a staffing survey in 1994/95.¹⁹ At that time, UC libraries estimated the following resources were devoted to interlibrary lending and borrowing:

Borrowing	59.97 FTE (27% student assistants) Borrowed 154,555 items [73,769 were non-returnables; 58,407 or 79.2% were filled in UC]
Lending	68.4 FTE (42% student assistants) Lent 286,506 items [176,550 were non-returnables; 60,830 were for UC or 34.5%]

There is no distinction in the survey between returnable and non-returnable workloads.

Transaction costs in FTE:

Borrowing	2,577 transactions/FTE
Lending	4,189 transactions/FTE

IX. Implications for UC

Expected increase in UC article requesting without PIR

Recent trends suggest that, all things being equal, the non-returnable borrowing requests filled within UC are leveling off (see p. 2). We do not yet have 98/99 data, but I would predict no more than a 5% increase. *Note, only 30% of UC non-returnable lending is for UC.* The reasons for this prediction are the growing impact of online articles and the fact that no major periodical cancellations took place in 1999.

Impact of licensing program

As noted in Section III, the sample of intercampus article requests analyzed by publisher may already have been affected by the publisher licensing program. The data suggest that another 10% of requests may be obviated when five years of articles from priority publishers are available online.

Prediction models for article *Request*

It is difficult to predict the actual effect of introducing *Request* to the CDL-hosted databases. There is no other system with UC's history of resource sharing, locally-mounted databases with a command-driven *Request* feature, that restricts only to faculty, graduate students and staff, and that has as much material licensed as we expect to by 2000. Some cost models for various scenarios are presented below. These models could be applied with infinite variety to the system as a whole and on a campus basis with the data presented in this report (costs of borrowing/lending transactions; campus transaction data). If all increases in lending non-returnables are offset by decreases in traditional, staff-mediated borrowing, then costs may not increase *in the aggregate*. The models below are conservative in that they expect most of the *Requests* to be new requests, so that savings in borrowing are not over-estimated. Although

¹⁹ [UC] ILL Staffing Survey, July 22 and August 1, 1996

costs at the borrowing library *are not zero* (a photocopy received must be processed, packaged, addressed, and placed in campus mail), they are assumed to be for sake of this rough model.

Increasing the 1997/98 base for non-returnable UC interlibrary borrowing by 5% produces 70,947 UC borrowed/filled non-returnable requests as a baseline.

If lending to UC increases by 25% and 10% of the baseline borrowing requests are automated

+17,737 requests; 7,095 of baseline borrowing requests automated		
	<u>UC FTE study</u>	<u>with ARL cost data</u>
Increased lending costs:	+4.23 FTE	+\$216,911 at UC ARL mean of \$12.23
Decreased borrowing costs:	-1.48 FTE	- 117,564 at UC ARL mean of \$16.57
Net effect	+2.75 FTE	+\$ 99,347

If lending to UC increases by 50% and 25% of the baseline borrowing requests are automated

+35,474 requests; 17,737 of baseline borrowing requests automated		
	<u>UC FTE study</u>	<u>with ARL cost data</u>
Increased lending costs:	+8.47 FTE	+\$433,835
Decreased borrowing costs:	-6.88 FTE	- 293,902
Net effect	+1.59 FTE	+\$ 139,933

If lending doubles and 30% of baseline borrowing requests are automated

+70,947 requests; 21,284 of baseline borrowing requests automated		
	<u>UC FTE study</u>	<u>with ARL cost data</u>
Increased lending costs	+16.94 FTE	+\$867,682
Decreased borrowing costs	-8.26 FTE	- 352,678
Net effect	+ 8.68 FTE	+\$515,004

These scenarios reflect system or aggregate costs, but how increases in lending coupled with more automated borrowing processes might affect an individual campus will vary. Load leveling will be continued in Phase II and may become more sophisticated than simply listing net lenders last. For example, the system could pick randomly first from the group of net borrowers and secondly, randomly from the group of net lenders which (currently Berkeley, Davis, and UCLA).

Increases in UC lending of non-returnables will disproportionately affect net lenders. Applying recent campus proportions for total non-returnable lending and borrowing activity (see page 4) produces the following results. (These models assume, however, that behavior—use of *Request* in favor of other modes—will be the same for all campuses.) For example, Berkeley accounted for 16% of lending non-returnables within UC and 8% of borrowing non-returnables in 1997/98. Riverside accounted for 5% of the lending and 11% of the borrowing.

Examples

In the first scenario above (25% increase in UC borrowing and 10% of the baseline borrowing automated through *Request*) the effect on Berkeley might be as follows when applied with the ARL study UC mean costs:

.16 x \$216,911	=	+\$34,706	increased lending cost
.08 x \$117,564 =		- 9,405	decreased borrowing costs
		+\$25,301	net increased costs

In the second scenario (50% increase in UC borrowing and 25% of baseline borrowing automated through *Request*), the effect on Riverside might be as follows when applied with the ARL study UC mean costs:

.05 x \$433,835	=	+\$21,692	increased lending costs
.11 x \$293,902	=	<u>- 32,329</u>	decreased borrowing costs
		-\$10,637	net decreased costs

Borrowing outside UC (if *Request* sends a request to borrowing staff Review files, this is still to be decided) could also increase. However, current borrowing outside UC accounts for only 23% of total non-returnable borrowing. The sample of MELVYL requests made via telnet and CDL-hosted databases that were analyzed by Heath found that only 9% of those requests were for titles with no UC holdings.

Increased costs will include labor, delivery, royalties for borrowing, OCLC transactions until we have our own fulfillment software, etc. These costs are included in the ARL models.

With the number of variables that come into play, it is not possible to make definite predictions. The purpose of all of the information and data presented in this report is to inform the decision-making by the nine campus libraries with regard to whether and when to implement automated *Request* in the CDL-hosted databases for journal articles.