

Approval Plan Profile Assessment in Two Large ARL Libraries

University of Illinois at Urbana- Champaign and Pennsylvania State University

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Two Association of Research Libraries member libraries, the University of Illinois at Urbana-Champaign (UIUC) and Pennsylvania State University (Penn State), evaluated their monograph acquisition approval plan profiles to answer basic questions concerning use, cost effectiveness, and coverage. Data were collected in tandem from vendors and local online systems to track book receipt, item circulation, and overlap between plans. The study period was fiscal year 2005 (July 1, 2004–June 30, 2005) for the approval plan purchasing data, and circulation use data were collected from July 1, 2004, through March 31, 2007, for both UIUC and Penn State. Multiple data points were collected for each title, including author, title, ISBN, publisher, Library of Congress classification number, purchase price, and circulation data. Results of the study measured the cost-effectiveness of each plan by subject and publisher, analyzed similarities and differences in use, and examined the overlap between the two approval plans. The goals were to establish a benchmark for consistently evaluating approval plan profile effectiveness and to provide a reproducible method with baseline data that will allow other libraries to collect comparable data and conduct their own studies.

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Approval plans have been considered an efficient and cost-effective way for libraries to acquire books in large quantities across many disciplines. Through approval plans, vendors supply current imprints as well as notification slips or forms to libraries on the basis of selected publisher output, subject profiles, and nonsubject categories such as readership level, country of origin, and format. When combined, these factors determine the parameters for selecting titles within the approval plan. Approval plan profiles can be limited by any number of factors, including price, scope, format, audience, language, and publisher. Each approval plan's profile is carefully established by library subject specialists to meet the research, curricular, and learning needs of the library's users.

If a library commits to purchase large quantities of books on approval, vendors may offer substantial discounts off the list price. Libraries also may have the option to return titles that they consider outside of the approval profile. Additional vendor services include shelf-ready services, such as cataloging, bar

coding, and labeling, at an added cost. However, shelf-ready titles cannot be returned unless they are received damaged or clearly outside of the approval profile (e.g., item exceeds price limit).

Approval plan profiles can take considerable time to formulate and, once implemented, may not always be subject to regular review and revision. However, libraries should regularly consider a number of questions concerning their approval plan profiles, including the following:

- How frequently should profiles be evaluated and revised?
- What criteria should be used when assessing the effectiveness of approval plan profiles?
- Can cost-effectiveness be measured, and if so, do the results point to reevaluation of local profiles?

To answer these and other questions surrounding the use of approval plans in large libraries, especially within the Association of Research Libraries (ARL), the authors conducted an assessment of domestic approval plans at the University of Illinois at Urbana-Champaign (UIUC) and Pennsylvania State University (Penn State). The study examined receipts from two book vendors: Blackwell Book Services at UIUC and YBP (formerly known as Yankee Book Peddler) at Penn State. These two institutions, both of which are members of the Committee on Institutional Cooperation, planned to undertake major reviews of their approval plans and decided that developing a study comparing results from similar institutions would be advantageous.

Although these university libraries vary in size and use different vendors, they share the mission of all libraries: to acquire the materials needed by their clientele. In large academic libraries, such as UIUC and Penn State, this usually entails the use of approval plan profiles. Differences and similarities between the two libraries and their approval plans became apparent during the research process. The authors conducted the study at each library using the same method in order to compare results, and they logged the discrepancies through the data collection and analysis process.

Research Questions

The most critical area examined relates to the use and cost of material acquired by libraries through approval plan profiles. The primary research question focused on examining the current method of providing large quantities of books to support the research, teaching, and learning needs of the students and faculty of each university studied and asked the following: Can a cost/use ratio be derived that indicates the point at which an approval plan profile is effective or

ineffective? Beyond the basic analyses of cost and use, other questions were framed to guide the data analysis:

- How does circulation and cost/use compare between UIUC and Penn State?
- How does cost/use vary by subject discipline at UIUC and Penn State?
- Do the two approval vendors (Blackwell and YBP), in combination with the different profiles, overlap? Are the two libraries buying a high percentage of the same titles?
- What publishers represent the highest use at each library? Is there a correlation between the highest volume publishers and the highest average use?
- Is Trueswell's 80/20 rule applicable to approval book purchases; that is, do 20 percent of the approval books account for 80 percent of their circulation?¹ Is Kent's hypothesis in *Use of Library Materials: The University of Pittsburgh Study*, "A very small portion (perhaps 10 percent) of the library collection of book titles accounts for major portion (80 percent or more) of circulation and in-house use," a more likely outcome?²

Literature Review

Numerous publications have broadly examined the use of library materials, and several important studies have examined the use of books over a period of time. Research also has been conducted on the use and cost of books acquired through approval plan profiles.

Studies that have addressed the effectiveness of approval plans include those by Kingsley and Brush.³ In 1996, Kingsley found that 50 percent of approval plan books circulated within the first five months after receipt, and 67 percent circulated within the first sixteen months after receipt at Western Michigan University. In her subsequent (2000) study, Kingsley advocated the use of management reports to closely monitor circulation patterns of approval materials, asserting that "the likelihood that an approval plan will continue on automatic pilot, adding books in some very low-use areas and perpetually short-changing some heavy-use topics offers the risk of particularly ineffective spending if management information about approval plan book use is not monitored."⁴ Brush compared the circulation of engineering titles received on approval with the circulation of all materials in the Library of Congress "T" call number classification at Rowan University in the 2005 fiscal year (FY05), with both acquisition and circulation taking place in FY05. The results showed that books received from the approval plan profile did circulate at a rate much higher

than the collection as a whole. The overall circulation rate for approval plan books was 23 percent, versus 6 percent of the engineering collection as a whole. Brush concluded, "Our approval plan books (the most recent ones) circulated at a much higher rate than the engineering collection as a whole, indicating that they are filling a real need."⁵

A few studies have taken the next step and examined the cost/use ratio of monographs. Crofts looked at cost and circulation of monographs by subject to develop a funding formula. Over a five-year period (1990–95), "values expended per book range from less than one dollar (recreation) to almost twenty-five dollars (accounting)."⁶ Rodriquez studied the cost and use of monographs at an academic health sciences library over a three-year period: July 1, 2004, to June 30, 2007. He found, using a ratio of expenditure (cost of book) to circulation, that health science subjects varied in Actual Cost of Use (ACU) from \$8.04 to \$191.31 with a mean of \$39.03.⁷ A University of Texas study calculated the cost per use of printed books at between \$3.24 and \$28.57; no time frame was given for these data, but they include the ongoing costs of heating, ventilation, air conditioning, shelving, and maintenance.⁸

These studies show that both cost/use ratios and circulation rates for books can vary widely. These variances can be attributed to the subject matter and the size, scope, and type of library, as well as the size of the approval plan and the nature of the profile. The different results confirm the need to compare similar libraries with similar plans or to conduct multiple year studies at a single library with an approval plan profile that is consistent over time. Previous studies helped establish a baseline for comparison with this research study. Most circulation studies look at longitudinal data over a series of years to demonstrate use; in this study, titles had between twenty-one and thirty-three months to circulate.

Juran initially proposed the law of the vital few (20 percent) and trivial many (80 percent) in the context of business operations.⁹ Trueswell later applied the 80/20 rule to library collection development by suggesting that 20 percent of the collection accounts for 80 percent of the circulation.¹⁰ He used the 80/20 rule to support the development of core collections centered on the 20 percent of the collection that generated the most use with the understanding that the remaining 80 percent would circulate less frequently or not at all.

Kent examined for five years the circulation of monographs acquired in 1969 at the University of Pittsburg.¹¹ He proposed three hypotheses: that 10 percent of the library collection would account for 80 percent of circulation and in-house use; that 25 percent of the collection would not be used in ten years; and that 50 percent of the collection would circulate once or not at all in a ten-year period. The study confirmed these hypotheses and determined that the window for a book to circulate was

limited and the first two years of availability determined future circulation.

The 80/20 rule has been tested over time with varying results and has been one benchmark used to assess the effectiveness of collection development. Hardesty's study of the circulation of books acquired in a six-month period indicated that only 63 percent of books acquired at DePauw University circulated within five years, and 30 percent of books generated 80 percent of the total circulation.¹² Hardesty later replicated the DePauw study at Eckerd College with similar results, finding that 34 percent of books received accounted for 80 percent of circulation.¹³

Results of other studies do not strongly support the 80/20 rule. Hamaker studied recently acquired monographs to determine circulation patterns within a very limited timeframe.¹⁴ Of the newly acquired monographs cataloged in September 1990, 43 percent had circulated by mid-February 1991. Treadwell's study examined the use of titles at Texas A&M coded "select" by vendor Baker and Taylor (titles most likely to be reviewed in a scholarly journal), testing the hypothesis that these materials were more likely to circulate than those that were not coded "select."¹⁵ She also hypothesized that titles at the undergraduate level were more likely to circulate than those at the graduate level and that books covering broad subject areas were more likely to have circulated at least once in the first eighteen months of receipt than books covering specific disciplines. The results of Treadwell's study showed that 95 percent of all "select" books circulated in the first year, except for undergraduate humanities titles, which circulated at a 76 percent rate. This study also showed that social science and science materials circulated at almost the same high circulation rates—95 to 99 percent.

Studies on monograph use in health science libraries do not support either the 80/20 rule or Kent's 80/10 hypothesis. Eldredge found that of 1,306 monographs added to the collection of the Health Sciences Center Library at the University of New Mexico in 1993, 84 percent circulated at least once by November 1997.¹⁶ Eldredge also found that 19.45 percent of monographs accounted for 57.80 percent of circulations and 36.29 percent of monographs for 79.76 percent of circulations. In another study of 1,600 monographs at the University of Illinois at Chicago Health Sciences Library, Bleic found that monograph use did not decline sharply over the three-year period of her study, with percentages of use at 38.69 percent in year 1, 32.37 percent in year 2, and 29.85 percent in year 3, for a total of 7,659 circulations of 1,674 monographs.¹⁷ The results did not strongly support the 80/20 rule because 38 percent of monographs accounted for 80 percent of circulation and 2.21 percent of monographs accounted for 21.84 percent of circulation. The higher use may be attributed to the difference in user populations, that is, health sciences students

versus undergraduates, who were the focus of the Kent and Hardesty studies.

Penn State's YBP Library Services Approval Plan

In FY05 the Penn State system included twenty-three campuses located across the Commonwealth of Pennsylvania. Penn State is organized as a single university geographically dispersed, and therefore all campus libraries are part of the University Libraries. Campuses range in size from less than 800 students at smaller campuses to more than 42,000 students at the largest campus, University Park. In FY05 Penn State student enrollment totaled approximately 81,000 students (70,000 undergraduate and 11,000 graduate students). With more than 5,000 faculty (tenure track and fixed term) and 12,000 staff (non-tenure track positions in all job classifications), the total university-affiliated user population was 98,000. Each campus library is allocated a materials budget and is responsible for selecting information resources that support the teaching and research needs of its own campus faculty and students. With few exceptions, materials acquired at any campus library are available to Penn State users regardless of location within the university. Acquisition and cataloging operations for most campus locations are centralized at University Park.

The University Libraries maintained nine approval plans in FY05. One small awards plan was at a non-University Park campus; the remaining eight plans supported collections at University Park. Seven of the eight plans were relatively small and focused on specific subject content (e.g., music scores) and foreign language materials. The largest approval plan was a comprehensive English language plan with YBP for automatic delivery of books and notification slips covering most subject areas. The YBP approval plan was augmented by a small plan with YBP's British subsidiary, Lindsay and Croft.

Penn State's YBP approval plan was first established in 1992 and has been refined over the years. The plan is divided into multiple subprofiles that are based on broad subject areas that mirror the University Park subject library orientation. Subprofiles include the following subject areas: arts and humanities (including architecture), business, education, engineering, earth and mineral sciences, life sciences, physical sciences, mathematical sciences, and social sciences. Each subprofile has a fund allocation based on historical publication data and projected inflation for the fiscal year.

The YBP plan is detailed and granular to ensure appropriate coverage across subprofiles and eliminate any overlap. For example, the arts and humanities subprofile supplied books for LC class P (philology and linguistics

(general)) with the exception of P88-96 (communication, mass media), P301-302 (style rhetoric, composition), and P304 (vocabulary), which were included in the social science subprofile. A price limitation requiring notification, as opposed to automatic book delivery, varied from \$175 to \$200. Preference was given to receipt of cloth-bound over paperback books in FY05. The YBP plan is a unified plan that includes university presses, trade publishers, and other publishers within each subprofile. University press coverage was and still is a priority, and often subprofiles exclude books in some subject areas with the exception of automatic delivery of books published by university presses.

YBP approval books are received shelf-ready on a weekly basis. Shipments are reviewed by selectors to monitor the quality of the collection. The review also allows selectors to monitor the publishing output and discover emerging trends across subject areas. Selectors flag approval receipts for additional processing (e.g., binding, location changes, etc.). Because the books are received shelf-ready, returns are limited to defective volumes and obvious vendor errors (e.g., book exceeds \$200 price limit).

Penn State's YBP FY05 Receipts

The YBP universe of titles profiled in FY05 was 52,794. Penn State's YBP approval plan profile resulted in the automatic delivery of 15,520 (29 percent) of YBP's profiled titles. Furthermore, notification slips were profiled for an additional 23,339 titles, leading to 3,119 firm orders placed with YBP. The combination of automatic book delivery and firm orders generated from notification slips resulted in the receipt of 18,639 (35 percent) of YBP profiled titles.

UIUC's Blackwell Library Services Approval Plan

UIUC is the largest of three University of Illinois campuses, with other locations in Chicago and Springfield. In FY05, the UIUC campus population consisted of approximately 39,000 students (29,000 undergraduate and 10,000 graduate students) and almost 6,000 academic staff (including faculty, academic professionals, and postdoctoral students), for a total of approximately 45,000 potential library users on campus. The UIUC library system is composed of a main library, an undergraduate library, and thirty-eight departmental libraries, many of which are dispersed throughout the campus in departmental buildings. The UIUC Library has a centralized acquisitions department that processes materials for all but the Asian and Slavic Libraries (the Law Library is under a separate administration). The largest approval plan covers English language monographs published in the United States and the United Kingdom and is vended to

Blackwell Book Services. The UIUC Library central acquisitions unit also maintains twenty other plans: four European blanket order plans, twelve Latin American profiles, several African order plans, and two blanket order plans for music (one for books and one for scores). The plans are built to serve the users of the campus at UIUC.

The domestic publisher approval plan at the UIUC is serviced by Blackwell's Book Services and is the largest and most comprehensive approval plan at the library. UIUC awarded a contract to Blackwell Book Services in 2003 for domestic firm and standing orders as well as the approval plan. The domestic plan for English language books is for a comprehensive subject range. The approval plan in FY05 served every departmental library with books received in all disciplines. Notification slips for higher priced titles and legal and medical titles were sent. Legal and medical notification slips were reviewed by library subject specialists for approval selection to meet the focused needs of the law school research interests and clinical veterinary medicine program. The approval plan was funded centrally in FY05 and was not allocated into subaccounts. Support was provided for all materials covered by the plan at that time, although records were kept by selection location for reporting purposes. In FY05, 11,037 books were received on the Blackwell domestic approval plan. The library used the same vendor to purchase UK imprints. Although the U.S. publication was always preferred, the UK title was shipped if the U.S. title was not published simultaneously. Several thousand additional titles were purchased on the UK side, but only the domestic imprints were analyzed for this study.

The Blackwell approval plan contained two publisher plans. One covered 90 mainstream trade press publishers with many of their imprints. The second plan covered 74 university presses for 175 imprints. Liberal price caps were in place at that time, allowing any title under \$500 to be shipped. UIUC uses the Dewey Decimal Classification system with locally applied exceptions, therefore complete shelf-ready processing was not possible. However, the Blackwell supplied PromptCat catalog records (an automated service that delivers copy cataloging records for materials purchased from vendors) and bar coded each book. UIUC's Blackwell approval plan was a paperback-preferred plan. Books were shipped weekly by courier service and were available for review by selectors for two weeks. Because liberal centralized funding was available and the plan was well focused, very few titles were returned in FY05.

The UIUC approval plan specifically excluded many important standing orders. These continuations were purchased on separate orders and were budgeted for within specific subject funds. Book series that selectors wished to receive directly did not come via the publisher-based approval plan and therefore were not included in the data

used for this study. Also, as noted earlier, the approval plan was a U.S.–, and then UK–, preferred match plan. This meant that when a title was only available from the UK for a set time interval, the UK title was sent rather than waiting for the U.S. imprint in order to best serve the goal of obtaining the content as soon as possible. The UK titles were not analyzed by UIUC or Penn State for this study.

UIUC's Blackwell FY05 Receipts

In FY05 the Blackwell universe of profiled titles was 56,489. UIUC's Blackwell approval plan profile resulted in the delivery of 11,037 domestic titles, or 20 percent of Blackwell's profiled titles. Notification slip receipts were part of that total. Of the 11,037 titles received on approval, 6,030 were trade press titles and 5,007 were university press titles. Approximately \$500,000 was spent in FY05 on the domestic titles received on approval from Blackwell. The library selectors also ordered and received another 4,882 titles as firm orders from the Blackwell Collection Manager online interface to select titles that were then batch ordered. That brought the number of monographs ordered to 15,919, or 28 percent of the Blackwell output. In the same year, UIUC received on standing order another 2,635 volumes; more than 1,600 of these were yearbooks, directories, and other annuals that traditionally have been excluded from most approval plans. However, approximately 1,000 titles were separately classed monographs received as part of an ongoing book series, such as the Springer book series, and these volumes brought the final total to approximately 17,000 titles, or 31 percent of the Blackwell profiled titles.

FY05 was not a normal year for UIUC's Blackwell approval plan. In 2004, Blackwell implemented a new distribution system that did not deliver on its promise of more efficient and timely selection and delivery of books. Approval matches could not be fulfilled, and consequently hundreds of orders were redirected from Blackwell to other vendors during the second half of the 2004–5 academic year. This resulted in a significant reduction in books acquired on approval from Blackwell in FY05. Nevertheless, the authors decided to use FY05 approval data for this study, knowing that the method and data would be sufficient for comparison purposes and provide a base year for future comparisons.

Research Method

The study examined the use of domestic monograph titles received on approval at UIUC and Penn State for FY05 (July 1, 2004–June 30, 2005). The authors studied circulation data for these approval receipts to determine use patterns by publisher and subject. Additionally, overlap

between the two approval plans was examined. Data were extracted from each library's integrated library management system (Sirsi Unicorn at Penn State and Endeavor Voyager at UIUC) for titles acquired on approval from Blackwell (UIUC) and YBP (Penn State) for FY05. Circulation data were extracted for these titles from the time of receipt in FY05 through March 31, 2007. Therefore approval books received in FY05 had between twenty-one and thirty-three months from the time of receipt to circulate at Penn State and UIUC. The extracted data were then moved into Microsoft Access databases, which were queried to answer specific research questions.

As previously noted, Penn State received YBP approval books shelf-ready and PromptCat catalog records for loading into Sirsi Unicorn. Because of system limitations and workload constraints, Penn State could not create order records for YBP approval books. The YBP approval titles for FY05 were identified by the presence of a single MARC 980 field (PromptCat acquisition data) in the catalog record. The MARC 980 field included fund codes and the YBP invoice date, which facilitated identification of approval titles received in the various broad subject areas. Penn State identified and extracted the data in May/June 2007 for records loaded into Sirsi Unicorn for FY05, and therefore some catalog records had been updated and either lacked a 980 field or included multiple 980 fields. Of the 15,520 YBP approval books received in FY05, this study analyzed the 13,660 titles (88 percent) that contained a single MARC 980 field. Data fields extracted from Sirsi Unicorn were the following:

- Date Record Created
- OCLC Record Control Number
- 020—ISBN
- 050—Library of Congress Call Number
- 090—Local Call Number
- 1xx—Main Entries
- 245—Title Statement
- 246—Varying Form of Title
- 260—Publication, Distribution, etc. (Imprint)
- 980—YBP PromptCat acquisition information
- Item record—Location information and circulation counts

UIUC extracted MARC bibliographic records and associated acquisitions data from the Voyager system using the Blackwell approval plan ledger reports established to account for approval receipts title by title. Brief bibliographic records provided by Blackwell were automatically loaded into Voyager on a weekly basis. Staff successfully matched these files to the full bibliographic record, thereby allowing for alignment of UIUC's records with those of Penn State. Data fields extracted from Voyager were the following:

- Bib ID
- Fund Code
- Location Name
- Price
- Brief Title (order record)
- Author (order record)
- ISBN
- OCLC Number (taken from bib)
- Line item create date (order record = Blackwell)
- Line item status (recvd)
- Status date (receive date so date item itself available)
- Publisher
- Publisher Date
- Item ID
- Barcode
- Display Call Number (local Dewey Call)
- Place Code (used to eliminate UK items)
- Action Date (first time record changes after record imported)
- Count Charges
- Count Renewal
- LC Call Number (050)

Books from the approval plan profiles that were selected for reference collections (noncirculating location) or reserve (potential for high circulation) were noted in the database. Noncirculating and high-circulation locations can skew circulation patterns, which prompted a review to decide whether to exclude these categories from the study. However, reference and reserve titles accounted for approximately 1 percent of the overall titles listed, and the authors decided to retain these categories in the study.

Penn State analyzed 88 percent of YBP approval receipts, whereas UIUC successfully matched and analyzed all Blackwell approval receipts for FY05. At both libraries, data included the full fiscal year of approval receipts. Circulation data were extracted to match the fiscal year for the FY05 approval titles extending through March 31, 2007. Circulation policies were compared at the two libraries and were found to be nearly identical, with books circulating to faculty and graduate students for a semester (sixteen weeks) and to undergraduates for four weeks.

Findings and Analysis

The authors examined patterns of use, nonuse, cost per use, and overlap between the Penn State and UIUC approval plan profiles for FY05. Table 1 shows the number of approval titles received from trade and university presses and summarizes the circulation and cost per use for approval plans in the aggregate. Both libraries received a much higher proportion of receipts from trade publishers.

Table 1. Summary of Receipts, Circulation, and Cost per Use of Approval Plan Books

Institution	Trade Publisher Titles		Univ. Press Titles		All Approval Plan Titles		Circ.	Ave. Cost/ Title	Ave. Cost/ Use	Ave. Circ./ Title
	Titles	% of Total	No. of Titles	% of Total	Titles	Total Cost				
Penn State	8,963	66	4,695	34	13,658	\$772,610	38,942	\$56.56	\$19.83	2.85
UIUC	6,455	58	4,582	42	11,037	\$425,876	19,112	\$38.59	\$22.28	1.73

Table 2. Circulation and Noncirculation of Approval Plan Books

Institution	% of All Titles that Circulated	Frequency of Circulation Activity (%)				
		0	1	2-4	5-9	> 10
Penn State	69	31	15	29	20	4
UIUC	60	40	18.6	32.5	8	1
Circulation of Trade Books						
Penn State		30.5	15.1	29	20.5	5
UIUC		39.5	18.6	33	8.1	1
Circulation of University Press Books						
Penn State		32.8	15	29.6	20.1	2.4
UIUC		40	18.6	32	7.5	1.3

This result was attributed to the higher publication output of trade versus university presses. The total number of Penn State approval books included in the study (13,660 titles out of 15,520 approval titles acquired) was 19 percent more than at UIUC. Penn State's approval books were acquired at a substantially higher total cost to serve a much larger number of users because of the purchase of higher-priced clothbound books at a lower vendor discount. As previously noted, UIUC did not acquire as many approval books as would have been expected in FY05 because of the implementation of a new materials distribution system at Blackwell. Nevertheless, in terms of averages, the cost-per-use ratio (total cost from the vendor divided by total use) and the average number of charges per book were in the same range, although slightly higher at Penn State. Penn State's higher cost-per-use ratio and average charges per title were most likely attributable to their higher acquisition costs and larger user population.

As shown in table 2, Penn State's percentage split between approval titles that circulated and titles that did not circulate was approximately 70/30, whereas UIUC's was 60/40. Each of Penn State's circulation categories was slightly higher than UIUC's, again most likely because the Penn State user population was more than twice the size of UIUC (98,000 compared to 45,000). Proportionally, the numbers followed similar trends. As expected, the number of books circulating more than ten times was low and most likely represents course-reserve book use. The large percentage of books not circulating within one to two years of acquisition (31 percent at Penn State, 40 percent at UIUC)

was disappointing but not unexpected and is addressed later in this paper.

Table 2 also shows the circulation data for each university by publisher group, comparing circulation frequency of the trade publishers to that of the university press publishers. The circulation frequency for trade and university presses was comparable at both institutions. The 0, 1, and 2-4 circulation frequencies correlate highly between the two libraries. Higher circulation at Penn State is again most likely because of its larger user population.

Table 3 shows circulation by broad subject discipline: humanities, social sciences, and sciences, based on LC class numbers. The humanities included LC classes B, C, M, N, and P; social sciences included LC classes D, E, F, G, H, J, K, and L; and sciences included LC classes Q, R, S, T, and any National Library of Medicine call numbers. The sciences had the highest average number of circulations per book: 3.74 at Penn State and 1.87 at UIUC. These results dispel the notion that scientists use only journal literature and not books, or use books less frequently than the humanities or social sciences. The highest number of circulations when disciplines are compared was in the humanities at Penn State and the social sciences at UIUC. These also are the subject areas where the most books were acquired. The question remains whether the profiles for the sciences are more effective, resulting in the highest number of circulations per book, or whether fewer science books are acquired on approval, meaning fewer choices for scientists looking to borrow a book. Perhaps the higher circulation is a consequence of both of these reasons. The lower number of

Table 3. Number of Titles, Circulation, and Average Cost and Circulation per Book by Broad Subject Discipline

		No. Titles	Total Circ.	Cost/Title	Cost/Use	Circ./Title
Humanities	Penn State	6,664	15,788	\$46.14	\$19.48	2.37
	UIUC	3,909	6,147	\$31.59	\$20.12	1.57
Social Sciences	Penn State	4,338	13,215	\$51.79	\$17.00	3.05
	UIUC	4,803	8,620	\$34.46	\$19.25	1.79
Sciences	Penn State	2,658	9,945	\$82.88	\$22.15	3.74
	UIUC	2,321	4,345	\$58.98	\$31.54	1.87

Table 4. Top Ten Subjects by Number of Titles Purchased, with Use and Cost/Use Data

Penn State	Titles	Circ./Title	Cost/Use	UIUC	Titles	Circ./Title	Cost/Use
Electric./Engineering	1483	4.45	\$18.90	American Literature	1321	1.51	\$14.17
Theory/Pract. Educ.	1456	3.6	\$11.88	History: America	1192	1.80	\$16.92
American Literature	1406	2.07	\$13.66	Economics	790	1.73	\$23.84
History	1402	2.71	\$14.22	Math/ Comp. Science	778	1.97	\$31.30
English Literature	1353	2.39	\$18.18	Literary History	615	1.71	\$15.90
Economics	1310	2.78	\$18.24	History Americas	583	1.48	\$17.39
Math/Comp. Science	1306	3.07	\$22.69	Social Pathology	553	1.79	\$19.21
Sociology	1133	3.85	\$12.71	English Literature	485	1.64	\$20.40
Literary History	1117	2.63	\$18.90	History of Asia	459	1.88	\$17.00
Architecture	985	3.97	\$11.88	Theory/Pract. Educ.	454	2.04	\$17.44

science books received on approval is most likely the result of the sciences moving available funding into serials over time, leaving less monograph funding available for books, including approval books. Additionally, important science-related series with an expected and relatively high use (e.g., the many “Springer Lecture Notes in . . .”) were maintained on standing order at UIUC, and their circulation numbers were not included in this study. Another factor may be that the significantly lower price caps at Penn State resulted in fewer selections of the higher-priced science books arriving as approval titles, resulting in a smaller pool of those titles for a larger group of users.

Table 4 shows the top ten subject disciplines by number of titles acquired at Penn State and UIUC. Although major disciplines have considerable overlap in titles collected, two programmatic differences likely affected the extent of overlap. Penn State’s profiles focused on engineering and architecture, both important academic programs at Penn State,

whereas UIUC received a higher percentage of approval receipts in the humanities, an area of higher publication output. These data show a correlation between relatively high circulation and number of titles purchased in the discipline, meaning that users are finding and using materials in fields where the libraries are purchasing larger quantities of titles.

Overlap between Penn State and UIUC

An earlier study by Nardini, Getchell, and Cheever examined overlap in YBP approval plan receipts at two larger academic libraries (Penn State and the University of Southern California (USC)) and two medium-size academic libraries (Occidental and Wake Forest) in FY95.¹⁸ That study found a 51 percent overlap between Penn State and USC. The authors of the present study expected that the overlap between Penn State and UIUC would be similar to those found by Nardini, Getchell, and Cheever, given

Table 5. Top Trade Publishers by Number of Titles Acquired on Approval

Penn State	Titles	Circ./Title	Cost/Use	UIUC	Titles	Circ./Title	Cost/Use
Routledge [°]	772	2.97	\$26.87	Wiley [°]	665	1.88	\$27.44
Springer [°]	646	2.87	\$31.72	Harcourt	562	1.69	\$31.46
Palgrave/MacMillan [°]	556	2.11	\$25.67	Palgrave/MacMillan [°]	404	1.51	\$29.78
Wiley [°]	490	5.05	\$9.95	Random House [°]	333	1.73	\$10.81
Ashgate	285	2.01	\$45.40	Routledge [°]	301	1.83	\$22.60
Elsevier [°]	256	3.45	\$38.00	CRC [°]	234	2.28	\$40.55
Kluwer [°]	197	2.63	\$41.79	Kluwer [°]	200	1.97	\$52.68
CRC [°]	194	3.31	\$40.68	Springer [°]	195	1.61	\$48.22
Pearson	181	5.27	\$11.29	Simon&Schuster	178	1.92	\$10.13
Praeger [°]	176	2.19	\$34.48	McGraw Hill [°]	149	2.15	\$23.92

[°] Denotes top ten trade publishers in common between Penn State and UIUC

Table 6. Top University Press Publishers by Number of Titles Received

Penn State	Titles	Circ./Title	Cost/Use	UIUC	Titles	Circ./Title	Cost/Use
Cambridge	661	3.22	\$20.27	Oxford [°]	334	2.01	\$18.09
Oxford [°]	661	2.57	\$20.80	Yale [°]	221	1.53	\$24.94
Yale [°]	164	2.89	\$12.60	SUNY [°]	207	1.61	\$17.26
SUNY [°]	145	3.30	\$15.55	Princeton [°]	205	1.73	\$16.23
Princeton [°]	132	2.98	\$12.21	U. California [°]	201	1.59	\$16.71
U. California [°]	124	4.04	\$9.71	Harvard [°]	196	2.21	\$12.05
U. Chicago [°]	113	2.96	\$13.30	Columbia	148	1.68	\$18.28
Manchester	95	1.77	\$10.35	MIT [°]	133	2.11	\$14.97
MIT [°]	95	3.69	\$33.49	U. Chicago [°]	132	2.01	\$18.09
Indiana [°]	87	2.52	\$16.37	Indiana [°]	127	1.94	\$13.99

[°]Denotes top ten university presses in common between Penn State and UIUC

the similarities in academic programs and user populations. Because of limitations in matching by ISBN or title from the available data, the authors conducted a manual comparison of titles. The sort and comparison yielded a match of 5,593 approval titles that were selected and received by both Penn State and UIUC. This corresponds to a 41 percent overlap for Penn State (5,593 of 13,660 titles) and a 51 percent overlap for UIUC (5,593 of 11,037 titles). The results for UIUC are exactly those found by Nardini, Getchell, and Cheever. The lower overlap for Penn State (41 percent versus UIUC's 51 percent) was due in part to Penn State's higher number of approval receipts, which increased the probability of a unique title. The overlap rates for the receipts from university presses was higher (74 percent for Penn State and 76 percent for UIUC), which is attributed to both libraries' commitment to select broadly from this publisher type.

The authors conducted an additional analysis of the overlap group to identify the publishers supplying these

popular titles. Tables 5 and 6 compare receipts, circulation counts, and cost/use data for Penn State and UIUC for the top ten trade and university press publishers.

At both Penn State and UIUC, the top ten trade and university press publishers accounted for nearly half of the total approval plan profile books received (44.1 percent for Penn State and 46.4 percent for UIUC). The circulation counts indicate a similar pattern, showing that those high-volume publishers had the highest circulation counts. Circulation data show that the content distributed by these publishers is in high demand by the library users at Penn State and UIUC. Both libraries are acquiring these titles on approval, lending support to the argument that approval plan profiles provide for the easy selection of a core group of titles from a core group of publishers. These data also help inform planning for the move to acquiring more electronic books. Acquiring e-books from publishers that already provide libraries with the highest number of heavily used print

Table 7. Top Ten Trade and University Press Publishers by Circulation for Penn State and UIUC

Penn State Top Trade Publishers			UIUC Top Trade Publishers		
	Circulations	% of Titles		Circulations	% of Titles
Wiley	2,472	82	Wiley	1,234	64
Routledge	2,146	74	Harcourt	947	63
Springer	1,854	68	Plagrove Macmillan	611	56
Plagrove Macmillan	1,194	63	Random House	557	33
Pearson	953	87	Routledge	552	61
Elsevier	884	67	CRC Press	444	72
CRC Press	643	76	Kluwer	393	65
McGraw-Hill	639	87	Springer	376	59
Blackwell	640	84	Simon & Schuster	342	66
Roman Littlefield	606	80	McGraw Hill	321	68
Penn State Top University Publishers			UIUC Top University Publishers		
Cambridge	2,129	77	Oxford	672	62
Oxford	1,697	68	Harvard	433	65
U. California	501	84	Princeton	354	64
SUNY	478	76	Yale	339	58
Yale	474	71	SUNY	333	53
Princeton	393	83	U. California	319	58
MIT	351	82	MIT	281	71
U. Chicago	335	71	Columbia	249	61
Teachers College	303	100	U. Chicago	247	70
Johns Hopkins	250	79	Indiana	247	67

titles makes sense.

As shown in table 7, Penn State and UIUC both have a high use of approval plan profile materials from different publishers. For example, 100 percent of the titles acquired from Teachers College Publishing by Penn State in FY05 circulated. The highest circulation rate (71 percent) for any one publisher at UIUC was for MIT titles. Determining the value of an approval plan profile by publisher is made easier by these data, showing selectors where they cannot go wrong by using a publisher-centric profile to automatically purchase books in demand by users. Conversely, the low end of this list, where none of the titles from a given publisher were used, can be considered for elimination from the profile. Figure 1 graphically represents the data from table 7, showing the number of books purchased by discipline and the correlating number of circulations that took place in FY05 and FY06.

Unused Books

The primary goal of this study was to determine how well the two approval plan profiles were serving users at separate but comparable ARL libraries. The books that did not serve users well, or at all, also are a focus of this study. Varying percentages of noncirculations have been reported in previous studies in the literature. Hamaker reported no use for 54 percent of materials within the first four months following receipt.¹⁹ Treadwell's study yielded very low noncirculation results (5 percent) that were based on circulation counts gathered eighteen months after receipt.²⁰ Hardesty at Eckerd College found that 33 percent of books acquired in a fiscal year had not circulated in a two-and-one-half- to three-year study period following acquisition.²¹ The widely varying results of these earlier studies did not provide a true benchmark given the different methods and sizes of approval plans, institutions, and user populations.

This study found that 31 percent of Penn State's approval plan receipts did not circulate during the study period, resulting in \$217,382.70 spent on as-yet-unused books. At UIUC, 40 percent of approval plan receipts did not circulate during the study period, resulting in \$164,339.50 spent on as-yet-unused books.

The authors attributed the lower noncirculating title percentage at Penn State to the much larger user population. Books made available to larger audiences are more likely to garner higher circulation. However, universities often do not have the option to quickly expand, and thus the answer might be consortial purchasing and sharing, thereby gaining users along with a more diverse pool of books. This option will be the subject of future research at UIUC and the Consortium of Academic and Research Libraries in Illinois.

The cost of noncirculation was approximately 24 percent higher at Penn State largely because of the cost of cloth versus the paper-preferred option used at UIUC. However, the percentage of UIUC's approval budget used to acquire noncirculating titles was higher because of the higher percentage of titles that did not circulate (40 percent at UIUC versus 31 percent at Penn State). Both libraries view the relatively high noncirculation rate to be a sign that approval plan profiles need to be reviewed and adjusted. It is no longer economically feasible for large research libraries to acquire a certain percentage of books "just in case" a title might be needed in the future.

The circulation of the FY05 approval plan receipts for both Penn State and UIUC did not conform to Trueswell's 80/20 rule or to Kent's 80/10 hypothesis. Results from this study did not approach 80 percent use from 10 or 20 percent of the titles acquired; more than half of the circulation resulted from 20 percent of the approval receipts at both Penn State and UIUC. Specifically, 20 percent of approval plan books acquired by Penn State accounted for 59 percent of circulation of all approval plan books acquired during the study period. At UIUC, 20 percent of approval plan books accounted for 64 percent of circulation.

Implications

Penn State

Penn State's results indicated that 69 percent of approval receipts circulated within one to two years of receipt. The average number of circulations per book (2.85) and cost

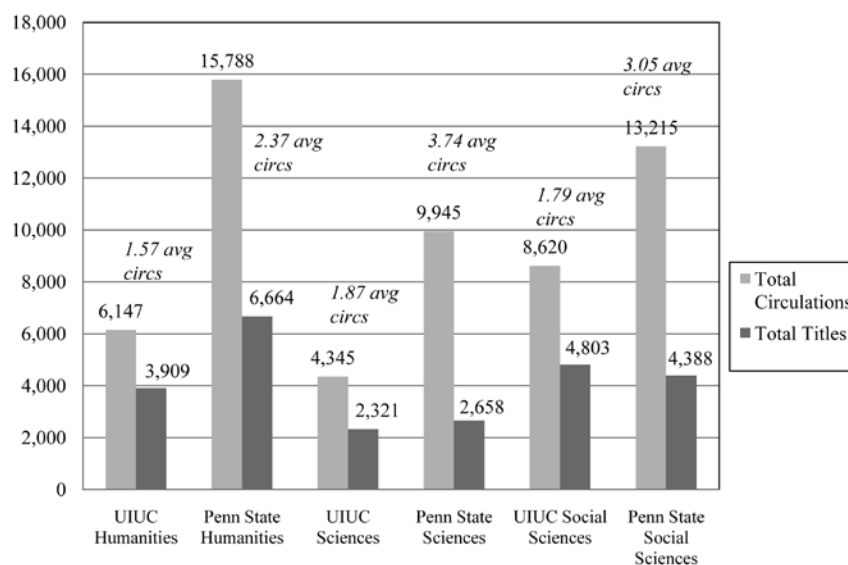


Figure 1. Graph Showing the Ratio of Books Circulating by Discipline for both Penn State and UIUC

per circulation (\$19.84) compares favorably to other studies, such as those conducted by Crotts and Rodriguez.²² Because of the need to reallocate collection funds from print to support electronic resources and other collection development priorities, analyzing nonuse is as important as tracking use. It is crucial that the materials Penn State purchases match the needs of its users. This study determined which publishers and subjects supply significant percentages of books that either do not circulate or receive low circulation. These data reveal the effectiveness of approval plan profiles, which need to be regularly reviewed and updated to move automatic delivery of books to notification slips in some subject areas and for some publishers. Although automatic delivery of books is a time-saving method of acquiring large quantities of books, automatic delivery of books with a higher probability of not circulating is not cost-effective. This study provided the basis for future assessment of the approval plan profiles to contain costs while continuing to supply access to the books needed by the Penn State user community.

UIUC

This research provided data on current approval plan profiles that showed cost/use and identified a core group of materials defined by subject and publisher. The results have already resulted in plans by UIUC to redesign profiles, track use, and modify the library's publisher list. More than 60 percent of approval selections were used within one to two years of availability, and science titles showed the highest circulation rate, with nearly 64 percent circulating and 1.87 uses per book. Science materials also had the highest use when compared

to other disciplines. However, the cost of books in all disciplines that did not circulate was high (more than \$164,000); 38 percent of the total approval budget was expended on unused books. UIUC will continue to address and research this issue, using these and similar data to create approval plan profiles that are more balanced toward materials that garner immediate interest and use. Subject selectors appreciated the data generated from this study and welcomed the information detailing the wants and needs of patrons. UIUC plans to conduct future assessments and hopes to follow up on the circulation frequencies of the 11,037 books purchased through the approval plan profiles in FY05 to determine if use declines, plateaus, or increases over time.

Conclusion

Research questions posed for this study focused on measuring cost effectiveness and establishing a time frame and a method for conducting an approval plan profile assessment. The primary goal of this study was to determine what approval plan profile maintenance routines could be recommended to ensure that books being acquired meet users' current research and teaching needs. The results of this study clearly point to the need for regular assessment of the approval plan profiles and necessary adjustments based on user needs and fiscal constraints. Making informed decisions requires reliable use and cost/use data as well as benchmarks for comparing cost/use data. This study presents a cost/use per title range of \$19.83 to \$22.28 and a circulation per title range of 1.73 to 2.85. Although these data compare favorably to those found in the literature, the most important data concern titles that did not circulate in the period of twenty-one to thirty-three months from purchase. For research libraries, even one use of a single book can be considered a worthy purchase. But unused books can signal a disconnect with users, especially at the rate of 30 to 40 percent of an approval plan profile collection. Further studies need to be conducted on the profiles for these unwanted books, but for now the answer is to focus on use, specifically on the top publishers whose books are in demand and show high levels of circulation soon after purchase. High-circulation subject areas also must be supported because these areas show selectors where users are expressing their need. Data showed that for both Penn State and UIUC, the top ten publishers accounted for nearly 50 percent of books received as well as the highest levels of circulation. These data point to where support should be increased, perhaps diverted from that spent on low- or zero-use publishers and subjects.

The limitation of this study at both Penn State and UIUC was the difficulty in efficiently extracting the data needed to conduct an analysis. Even with the aid of online catalogs and vendor databases, finding, extracting, verifying,

collating, and analyzing these data is very labor intensive. The lack of order records for Penn State approval books led to the use of the 980 PromptCat data housed in the bibliographic record, which proved to be an imperfect but reasonable solution. The results, however, can be critical to the ability of a library to serve as a vital and current source of information for users. One answer to the problem of data collection and analysis is to partner with vendors. Vendors are in the unique position of having access to all the data needed to conduct these studies (other than local circulation information). Having the data delivered in a clear, consistent, and standardized format would streamline the entire process, leaving institutions to gather circulation data. The authors encourage vendors to create systems and databases to support the continued analysis of mutual and considerable investments. The goal is to develop mechanisms for regularly providing collection development librarians with the tools needed to make more informed decisions regarding the management of approval plans.

Future Studies

Approval plan profile collection assessment must be ongoing, or at the very least regularly conducted, to monitor the large investments libraries make in approval plans. For this study in particular, continued analysis of circulation levels of the FY05 approval books will be conducted to determine if those titles that did not circulate were eventually used. If not, why did those books not circulate? Can patterns be identified? For those books that did circulate, did those books continue with relatively high use, or did use decrease over time? Which subjects garnered the most use over five, ten, or fifteen years?

Further research also will address the effect of user status and loan periods on circulation use. These data were collected during this study but have not yet been analyzed. Although this study provided important insight into circulation use across subject disciplines and publishers, additional research of specific publishers and titles is needed to determine patterns of use and nonuse. Is there an appreciable level of overlap of nonuse between UIUC and Penn State based on publisher? For example, what titles in common are not circulating? If approval plans between comparable academic libraries consist of high levels of duplication and percentages of nonuse, are large approval plan profile programs still viable given the need to support other collection priorities? Or are they an outmoded collection strategy given the changes in the economic climate? Further study is needed to determine the level of overlap between approval plans at academic libraries over time and the effect of virtual approval plans and consortial approval plans on collection development.

Finally, further exploration should be done to determine how libraries can better work with approval vendors to conduct assessment efficiently. Librarians must communicate their needs and state their expectations, knowing that a partnership in assessment will benefit both parties, resulting in a high use of books that serve the needs of our users.

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