Comparing Patrons' Renewal Behavior Before and After Implementing More Permissive Loan
Rules

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This research relies upon the contributions of dozens of librarians and library employees from OhioLINK member institutions. The author would like to thank the OhioLINK Inter-Campus Services Committee for encouraging libraries to participate in the study, and the many circulation and technical services staff who submitted data for the study on a weekly basis for several months. Thanks also to Dr. Doug Andrews in Wittenberg University's Department of Mathematics and Computer Science for his help in determining appropriate statistical methods for evaluating the data collected.

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Abstract

This article reports on a study of how long library patrons at 28 college and university libraries kept books checked out before and after a policy change allowing for longer circulation periods and more renewals. The behavior of most patrons remained similar before and after the policy change, with only a slight (7-14 day) lengthening of the length of circulation for many patrons. A significant minority of patrons made more extensive use of the longer loan periods, demonstrating the usefulness of the policy change for many users.

Keywords: renewals, statistics, consortia, circulation, interlibrary loan

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OhioLINK is a consortium of primarily academic libraries including almost every college and university library in the state of Ohio. One of the prominent ways in which OhioLINK libraries support each other is through patron-initiated circulation of most print and many media items to users throughout the consortium. With a combined collection of over 46 million items, many but not all of which are eligible for consortial circulation, OhioLINK users borrow approximately 350,000 items per year from other member institutions. When patron-initiated circulation (locally known as "PCIRC") was first implemented in 1994, most PCIRC items could be checked out for 21 days and renewed once for another 21 days, for a total of 42 days. The loan rules for most print items were later extended to allow up to four renewals, for a total of 105 days.

In 2011, The OhioLINK consortium took up the question of whether or not to further increase the number of available renewals for loans to users within the consortium. A group of five large research universities put forward a proposal to allow unlimited renewals for most materials, mitigated by an allowance for items to be recalled by other users after they had been checked out for 4 weeks. The rationale for the proposal was "to more fully support the research of faculty, graduate students and undergraduates throughout Ohio by providing unfettered access to as much material for as long as it is needed" (OhioLINK, 1). While there was sympathy with the desire for expanded access, some members of the consortium were concerned that more permissive loan rules would diminish access to materials for other users. Would users simply keep materials for as long as they were permitted whether or not they needed them or were using them? Would patrons be deterred from recalling items through unawareness of the possibility or

the perceived inconvenience of doing so? Although many librarians had notions or anecdotes about user behavior, there were no consortial data available to indicate how long users kept materials or how many times they tended to renew materials.

The article that follows is an exploratory data analysis reporting on data collected subsequent to these conversations in an attempt to provide an informed basis for making policy decisions. The study occurred in two phases. Phase One (“Before”) was a 16 week study to gather information about patrons’ renewal behavior. Based in part on the data collected in that study, a decision was made to increase the number of renewals available to six, and to double the duration of each checkout/renewal period for faculty from 21 days to 42 days. Phase Two of the study (“After”) was conducted in the year following the rule change to examine the impact of the new rules on user behavior.

Literature Review

There is little in the library literature that addresses users’ renewal behavior. Martin (2003) reports on a study at Northern Illinois University conducted in connection with a policy change moving from unlimited renewals to a maximum of 10 renewals or 3 renewals depending on material type. The policy change was driven not by a perceived need to restrict renewals, but to satisfy a technological requirement to define a maximum number of renewals in the integrated library system (ILS). The study did not examine circulation data or user behavior, but was rather a study of how users perceived the efficacy of the library’s communication about the policy change.

Zweibel and Lane (2012) offered a quantitative examination of circulation statistics reflecting user behavior. Their retrospective study of seven years’ worth of Columbia University circulation data looks at the numbers of checkouts, holds, recalls, and renewals per month by

different user types (undergraduates, graduate students, faculty and university officers, and visitors). They found that the overall number of renewals by undergraduates declined after a policy change allowing them to check out materials for an entire semester, rather than the previous four-week loan period (22). Although this provides some insight into how some user behavior may respond to policy changes, the article does not address the total duration for which users retained their books, nor the total number of times users renewed their materials. Thus, their study does not shed light on the likely overall impact of such a policy change.

Method

All libraries in the OhioLINK consortium use an integrated library system (ILS) from Innovative Interfaces, Inc (III); some use the older Millennium ILS, and some use the newer Sierra platform. Both systems record circulation data in similar ways. This study takes advantage of the consistent formatting of data, which makes it possible to compare circulation data across dozens of libraries.

Unfortunately, III systems do not natively record very robust historical circulation data. Whereas Zweibel and Lane were able to retrospectively examine their data (18), the data for the present study had to be captured in real time. Any longitudinal study of circulation statistics from a III system requires advance planning, taking snapshots of the relevant data repeatedly over the course of the period studied. The data sought for this study were available only to the local OhioLINK member institutions individually in their own ILSes, not through any centralized source. Due to these circumstances, data collection was carried out by employees at member institutions on an approximately weekly basis and collated by the author. OhioLINK's Inter-Campus Services Committee requested that volunteers from each willing institution contribute data each week. The distributed and voluntary nature of this method resulted in some

inconsistencies in the data over time as collaborators at member institutions changed positions, retired, went on leaves and vacations, got busy, or forgot to send timely updates. Over the course of the two data collection periods, data were collected from 56 institutions. To ensure comparability, the data used for this article are a subset of the total data collected, including only data from the 28 institutions that provided consistent updates throughout both Phase One and Phase Two of the study.

For each phase of the study, the same data snapshot was taken at each institution approximately every week. For each library user who had one or more items checked out at the time the snapshot was taken, the following data were recorded for each item checked out:

- a unique identifier for the library user
- patron type (student, faculty, staff, etc.)
- patron's institution
- a unique identifier for the item checked out
- number of times the patron had renewed the item
- lending institution
- call number where available

No patron names were attached to the data, but an encrypted version of the unique patron identifier was included. Thus it was possible to examine the data on the level of an individual patron, but the patron is identifiable only at the level of patron type and institution.

The data format also allows for tracking each individual circulating item. By noting the status and number of renewals for each item on a weekly basis, it was possible to see how many times each item was renewed before it was returned (Total Renewals) and the approximate duration for which a patron kept the item (Total Circ Length). Duration is approximate because

the exact return date is not known – if a patron had an item when data was collected on March 6 but was no longer checked out at the next collection on March 13, the length of circulation was calculated as of March 6. The date on which an item was initially checked out was similarly uncertain, and calculated from the first date on which it is known to have been checked out.

For the purposes of analysis, patrons were coded into groups (Patron Category). Each institution has its own list of patron types with varying degrees of granularity. Some list faculty and staff as separate categories; others treat them as one. Some list undergraduates, graduate students, seminarians, law students, medical students, and non-degree-seeking students separately; others conflate one or more of those categories. The patron type data were grouped into appropriate Patron Categories to the extent possible. The more granular Patron Type was used only to make comparisons with the broader Patron Categories (e.g. graduate students vs. undergrads).

Institutions were initially coded by Carnegie Classification, but that resulted in a greater number of categories than proved useful for analysis. They were subsequently coded into more inclusive categories (Institution Type): two-year colleges, four-year colleges, universities, and “special” institutions including seminaries, medical schools, art academies, and business colleges. The four-year category included some institutions with a very small number of graduate students.

For Phase One of the study (conducted prior to making a decision about whether or not to implement more permissive loan rules), the purpose was to determine the frequency with which items were renewed and how many times items were renewed before they were returned. The primary point of analysis was an examination of Total Renewals by Institution Type and Patron Type. A special point of focus was the percentage of books that were renewed all four times

allowed. This analysis relies on certain assumptions about how patron desires might be reflected in the circulation data. Materials renewed fewer times than the maximum allowed might be assumed to have been returned willingly by a patron who decided they had used the material as much as they wished. The items renewed as many times as permitted were regarded as those for which there was Potential Unmet Need, i.e., that patrons might have wished to keep those items longer if it had been permitted. Depending on one's perspective, this category might be believed to represent either (a) the area in which more permissive loan rules would benefit patrons the most, (b) the items checked out by perennial book hoarders/forgetters who will hold onto books as long as the system allows, or (c) some combination of (a) and (b).

In Phase Two, conducted after the policy change, the purpose was to determine what difference, if any, could be seen in the number of renewals and the total duration patrons retained circulated items between the "Before" and "After" periods. Length of Circulation and Total Renewals were compared between the two samples, both collectively and by Patron Category and Institution Type.

A significant limitation for Phase Two was that the "Before" sample included only 16 weeks of data. This meant that only the cohort of items checked out in the first few weeks of the study was tracked through the cohort's entire allowed circulation period. Some materials checked out later in the study had not been returned by the time data collection ended and were thus those cohorts were unavailable for analysis. For a true comparison of the "Before" and "After" samples that accounts for fact that circulation patterns at academic libraries vary throughout a semester (Zweibel & Lane 21), only data for items first checked out during that comparison period are used for this analysis. Further limiting the data available for analysis is the fact that under the new policy, the circulation period for faculty is now 42 days instead of 21

days; this brings the total period for which a faculty member may keep an item approximately 294 days. The second phase of data collection was not long enough to capture the full possible circulation period for the cohort of materials checked out by faculty in August-September 2012. For this reason, faculty data are separated from other data in the analysis of Phase 2.

Description of the Data

The data include each OhioLINK circulated item checked out at 28 institutions from August 22 through September 28 (in 2011 for the “Before” phase and 2012 for the “After” phase). The institutions include 1 two-year college, 5 four-year colleges, 15 universities, and 7 specialized institutions (seminaries, hospitals, art schools, etc.) There were 84,491 items checked out (44,360 Before, 39,521 After) by 18,362 library patrons (11,484 Before, 10,580 After, with some patrons appearing in both phases). The call number data show that 83% of the items had a Library of Congress call number, 16% had another sort of call number (Dewey, Author name, etc.) and 1% had no call number information. The Library of Congress call numbers were grouped into general subject areas; the other call numbers were excluded from any subject-area analysis.

Results

Phase One: Analysis of Data Prior to Changing Loan Rules

Prior to the implementation of more permissive loan rules in July 2012, patrons of all types were permitted to check out most circulating OhioLINK materials for 21 days and eligible for up to 4 renewals; the maximum permitted checkout period was thus 105 days (though patrons could increase this time by the simple expedient of incurring fines at a rate of 50 cents per book per day).

Approximately 17% of items in the studied cohort were renewed 4 times—the category of use referred to earlier as Potential Unmet Need. Approximately 51% of items were never renewed at all. The remainder of the sample divided almost evenly between items renewed one, two, or three times, about 10% for each of those renewal levels [see Figure 1]. These data show that most items were returned before policy required their return. Based in part on this information showing 17% Potential Unmet Need, OhioLINK implemented a policy allowing for up to six renewals instead of four.

Figure 1. Maximum Number of Renewals by Study Phase (Percents). The “Before” Phase allowed for 0-4 renewals. The “After” Phase allowed for 0-6 renewals.

Phase Two: Analysis of Data After Changing Loan Rules

The items in the “After” sample were checked out in August-September 2012, shortly after the change in loan rules and were eligible for up to six renewals. Overall, the percentages of items renewed zero, one, two, and three times were within 3% of the corresponding percentage from the “Before” sample [see Figure 1]. In each range, however, patrons opted to renew items

slightly more often after the rule change than before it. For example, the number choosing to not renew dropped from 51% to 49%. More items were checked out a fourth time as well (21%, inclusive of the items renewed four, five, and six times, in 2012 compared to 17% in 2011). Some items were, of course, also renewed five and six times (6% and 5% respectively) as allowed by the new rules.

The median number of renewals went up from 0 to 1, though the relevance of this datum is limited by the fact that this occurred due to the slight drop in zero renewals from 51% to 49%. The mean number of renewals went up from 1.3 to 1.6 renewals.

Comparing the Length of Circulation among non-faculty users between the two phases shows a more pronounced difference than seen when measuring the difference in renewals. The median duration for an item checked out in the “Before” sample was 28 days, compared with a median of 42 days in the “After” sample. [See Figure 2]. The median Length of Circulation was greater in the “After” sample by 7-14 days among students, faculty, and staff Patron Categories. [See Figure 3]. Faculty, who experienced the greatest increase in loan periods, had the greatest increase in the median Length of Circulation (14 days). Students, who experienced a smaller increase in loan periods, extended their borrowing to a similar degree, with a median increase of 13 days.

Figure 2. Boxplot of Length of Circulation in Days. This graph excludes faculty, as their allowed circulation period was substantially longer than other uses in the “After” Phase.

Although the first quartile and median measures are similar between the Before and After phases, the third quartile and long tail for the number of days items were checked out shows substantial demand for extended circulation. Before the policy change, one quarter of users kept their items for at least 77 days; after the change, that third quartile figure jumped to 118 days. Half of the items checked out (those below the median) saw somewhat longer use after the change than before, with the median rising by 14 days. The half of items above the median number of days circulated for considerably longer periods, with the third-quartile score representing items kept for 31 days longer than in the Before period.

In drawing comparison between subsets of users, the third quartile score makes a useful point of comparison, as it represents a middle-ground between the barely-to-moderately longer use period for more briefly used items (represented by items below the median length of circulation) and the highly variable long tail for the items with the longest use periods.

Comparing the third quartile figures across different Institution Categories, all categories other than Special rose by two to three weeks: 15 days longer for Four Years, and 21 days longer for Two-Years and Universities. Comparing different Patron Types within users in the “Student” Patron Category, Graduate Students show the greatest increase in Length of Circulation, with the third quartile score increasing by 22 days; other student types had a third-quartile increase of less than 10 days. Faculty increased the third-quartile from 77 to 118, with the greatest increase at four-year colleges (49 days), followed by university faculty with a 42 day increase in the third quartile. [See Figure 3].

Figure 3. Boxplot of Length of Circulation by Patron Category and Institution Type.

Conclusions

Overall, the two samples show behavior that is not dramatically different before and after the implementation of more permissive loan rules. There is a slight increase in the total number of times patrons renew books. The long tail in the Length of Circulation suggests that a

meaningful fraction of patrons did have an appetite for the extended circulation periods and/or increased renewals.

Although this study does not measure patron attitudes, it is to be hoped that the availability of increased renewals of consortial materials addressed the needs and desires that prompted discussion of a policy change. If the 18% of items renewed all four times allowed in the “Before” period represent Potential Unmet Need, then the 7% of items renewed all six times allowed in the “After” period represents a significant reduction in Potential Unmet Need. We may hope that these figures indicate that OhioLINK is serving the statewide population better now than it was before the policy change.

The proposal to increase the number of renewals allowed for OhioLINK circulation was originally proposed by some of the largest institutions in the state. In discussing the merits of the proposal, some members voiced concern that the permissiveness would largely benefit larger institutions, perhaps at the expense of smaller institutions. An examination of the data shows that users at every type of institution took advantage of the increased options for renewals. Although users at special institutions and the one two-year institution generally did not keep items for as long as other users, there was significant comparability between usage at the four-year colleges and the larger universities. The four-years and universities are the two largest groups of patrons in the study, and patrons at both types of institutions had very similar median, third quartile, and maximum Length of Circulation scores. This suggests that there is perhaps greater similarity in the renewal habits across OhioLINK than some had feared.

It is interesting to note that the number of renewals increased at every level—that more people renewed an item even once in the “After” period than in the “Before” period. This could be the result of shifting attitudes toward renewal (either driven by the policy change or not).

However, given that the samples only include materials checked out in the first few weeks of an academic term, it would be rash to read too much into these small movements.

Limitations and Further Research

The most significant limitation of this study was the short duration for collecting the first sample. The first sample was not originally intended to be a “Before” data set—it was intended to be “the” dataset to inform a policy decision in a tight timeframe. The collection of the “After” dataset arose from the belatedly-realized possibility of evaluating the impact of the policy change.

Librarians wishing to perform a similar study of their own patrons' behavior in relation to a change in circulation policy would do well to continue collecting data on a continuous basis once the initial data collection has begun. The pause in data collection between the “Before” and “After” periods here was driven not just by the belated awareness of an opportunity to study the impact of the policy change. The pause largely arose out of consideration for the dozens of collaborators who had to manually perform the data collection at each institution on a weekly basis. It is to be hoped that in the near future, more ILSes will include APIs or automation routines that make this sort of ongoing data collection less labor-intensive. (It is worth noting that III does have a task automation module, but the cost puts it out of reach for most libraries. Only three suppliers of data for this study provided data in an automated fashion.)

This analysis is also limited by its reliance solely on circulation data. Because this study does not include any user surveys, the attitudes that motivate library patrons' choices cannot be determined from the data. As noted by Zweibel and Lane, questions of “Why” cannot be answered by circulation data (19). In particular, the examination of Potential Unmet Need would benefit from input from library patrons. Patron surveys could help distinguish between Potential

Unmet Need and Actual Unmet Need. They could also reveal patron attitudes toward renewals and what proportion of patrons might renew items as often as they are allowed simply for the convenience of not having to return them.

Finally, this study does not include any information on turnaways and recalls—how many items were unavailable due to all circulating copies being checked out simultaneously, how often a patron received an ‘all copies in use’ message when attempting to request an item, how often items were recalled, or how these instances might relate to circulation duration. All of this information would contribute to a more complete understanding of the impact of the renewal policy on patrons’ experiences.

Despite these limitations and opportunities for further research, this study provides some insight into how patrons might respond to more permissive loan rules. Patrons took advantage of the greater allowance for renewals and extended loan periods, but the additional use of resources was characterized by stretching the existing gradations of usage rather than by a dramatic shift in behavior. This study outlines a general methodology that may be used by future studies, and it is to be hoped that shifts in ILS technology will allow for more comprehensive studies of this type.

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