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Keeping it Real: A Comprehensive and Transparent Evaluation of Electronic Resources

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Abstract

There will be a time when your library will need to evaluate all of your electronic resources. How would you do it? In response to a cut to our materials budget, we have developed a method that condenses a large amount of information into a few select criteria. In this day-long workshop, we walked through the process using the Decision Grid process developed at the University of Maryland at College Park (Foudy and McManus, p. 533-538) as a starting point. The workshop leaders first demonstrated each step of our process, and then the participants worked in small groups (5-7) using their own experiences and a sample data set of their own. The steps covered included selecting and defining the criteria, gathering and analyzing the data, and determining how to make final decisions. We covered some technical aspects of gathering and analyzing data, including using Excel functions. We also included discussions about the criteria and ways of eliciting honest and useful feedback from librarians and patrons. The participants received a flash drive with Excel templates that included formulas, as well as completed sheets with sample data, and the presentation files.

Introduction

The dual financial pressures on libraries has been well documented (Kolowich, 2012; Tillack, 2014; Lowry, 2011), with relative reductions in funding (Cuillier & Stoffle, 2011; Kelley & Lee, 2011; Powell, 2011) and relative increases in serials costs (Baveye, 2010; Fowler & Arcand, 2005). Individual libraries have developed their own responses to these pressures, including diversifying their funding models and reducing hours and staff. It is probably not surprising the most common response, though, has been to reduce resources, particularly subscription resources, whose expenses must be met year after year (Weir, 2010). Once considered a minor portion of the collections budget, serials and databases have come to be the second biggest expense for a library, after salaries and benefits (Baveye, 2010). Although serials and databases can be low-hanging fruit, they are often also forbidden fruit, viewed as a measure of collection quality by stakeholders.

There may be as many methods for deselecting resources as there are libraries. Unfortunately, many of these methods are based on historical practices (and thus, historical information),

qualitative reasons that are difficult to articulate, or the volume of protest (actual and/or expected). With the infiltration of business practices in the field of higher education and public administration, there is a growing expectation that such decisions would be based more on documented evidence or information or data, and less on ill-defined and difficult to document perceptions.

Towards that end, the members of the Collection Development Unit of the University of North Texas (UNT) Libraries conducted this workshop to present the methods they used in a comprehensive evaluation of subscription resources for the express purpose of selecting resources for cancellation. Our goal was to describe our methods, explain the purposes of the methods and measures, and enable other librarians to apply the broader methods to their own collections.

Background

The UNT Libraries has been faced with cuts to its collections budgets for three of the last four fiscal years. Between 2010 and 2015, our budget has been more or less flat; combined with an average 7% inflation rate on materials (particularly high for subscription resources), this is an effective

decrease of 32%. In late 2013, the Collections Management Division was advised to prepare for yet another \$1M cut. While efforts had been made in previous years to, essentially, “cut the fat” by eliminating duplicate subscriptions, print or print plus online, and highly irregular continuations, we knew that this impending decrease would be “cutting bone.” Our goal was to base our decisions on data that most closely matched the Libraries’ values.

While researching methods, we found and distributed amongst ourselves copies of the article written by Gerri Foudy and Alecia McManus, “Using a decision grid to build consensus in electronic resources cancellation decisions.” Although published nearly ten years before (2005), the article provided the foundation for a method that we believed would be most useful to us. The authors, from the University of Maryland at College Park, developed a rubric for evaluating their databases, with criteria based on aspects of their collection that they considered important, including accessibility, cost-effectiveness, breadth and audience of the content, and uniqueness of the content (Foudy & McManus, 2005).

UNT and the University of Maryland at College Park are similar institutions, with similar enrollment and funding models, and most, importantly for our project, similar goals for our respective projects. We were able to modify the method to fit our own collection development model and adjusted the criteria to include more objective measures, rather than subjective ratings. Workshop participants were encouraged to similarly “tweak” the method to address local concerns and to balance subjective and objective evidence.

Selecting and Defining Criteria

As mentioned above, we wanted to base our deselection decisions on the values of the UNT Libraries. These values were derived through an examination of the strategic plans of both the university and the libraries. Three core values were identified: an emphasis on undergraduate and graduate education over the faculty’s individually driven research; the need to demonstrate the cost-effectiveness of our collection; and the need to view the collection

holistically and not as a sum of separate subject-based collections.

Based on these values, and using the Foudy & McManus article as a foundation, we established the following criteria for evaluation: cost-effectiveness, ease of use, breadth and audience, and uniqueness of content. While the authors included ease of use in the criterion for access, other aspects of “access,” such as format and technical reliability, were either no longer relevant (all subscription resources under consideration were online), or did not vary enough to be a factor (nearly all were reliable).

While Foudy & McManus rated resources on cost-per-search and being (or not being) a “rapid inflator,” they did not detail how they developed these ratings. Rather than convert data that is already quantified into a subjective rating, we used the actual cost-per-use and change in price as the raw “score.”

For the other three criteria, our criteria was fairly closely aligned with those described in the article. Ease of use, breadth and audience, and uniqueness of content were all rated subjectively by subject-specialist librarians based on a three-level scale. Unlike the University of Maryland, who used small teams of librarians in broad disciplines, we asked all of the librarians to rate all of the resources, except for those that would be totally irrelevant to their fields. We wanted the broadest opinions, and we also viewed it as a learning opportunity for our librarians, who often are not aware of the possible relevance of these resources. While the librarians were required to provide one of the three ratings for each resource, we did encourage them to provide notes or comments about their score, if they wanted to qualify their score. For the overall rating, we used the mode (most common rating), and we included all comments in the final list.

Regarding these measures, we quickly realized that both the scale and the direction of these ratings or scores were not the same. Typically, for scores, higher is better (as in 1, 2, 3, etc.), and for ratings, lower is better (1st, 2nd, 3rd, etc.). Furthermore, the scales were very different, with the cost-effectiveness scores ranging from near

zero or even below zero for changes in expenditures to upwards of hundreds; whereas, the rating scales were set from 1 to 3. To ensure that all the measures would be comparable for each resource, we used the distribution of the resource within the entire list of resources *of its type*. Using the percentile as the score for each measure provided the same scale (0 to 1) and same direction (higher is better) for all measures.

Gathering and Analyzing Data

The decision to make before actually gathering and analyzing the data is where to store the data. There are a myriad of options, from within the integrated library system (ILS) or your electronic resources management system (ERMS) to more open systems, such as a wiki or intranet. The most important decision is to designate one tool or file as the “master repository.” This file should contain the final forms of data from all the other sources. After this decision is made, then the titles of the resources should be collected, and other relevant information (such as subject area, type of resource, and type of subscription) and a unique identifier selected. This last item is key to linking all the data together across all the other files or repositories. The other relevant information can be used to analyze deselections by subgroups.

Most librarians who evaluate electronic resources include cost-per-use in their analysis. It is clear that neither cost nor usage alone can provide the contextual information needed to make rational decisions. As indicated above, however, we needed to be clear regarding the definitions and sources of each of these key parts of the cost-per-use equation. While there are multiple sources for cost (e.g., ILS, publisher’s quotes, subscription agents,

Ulrich’s) and multiple measures of usage (sessions, downloads, etc.), we realized that using the same source and the same measure was most important when evaluating these resources. Important aspects to consider when gathering the cost-per-use is the use of pro- or super-rated prices or one-time discounts or credits, changes to titles or platforms, and lack of usage data altogether.

Another important aspect of the cost-per-use calculation is which usage measure to use. We knew usage measures varied greatly by resources, but we wanted to use the measure that was closest to the end user’s experience. We quickly realized that this “highest and best use measure” depended upon the type of resource, notably e-journals, e-books, indexing databases, online reference resources, and audiovisual streaming. With a few exceptions, the resources in each group reported the same use measures; for instance, all e-journals and packages reported full-text views and downloads, while most indexing databases reported record or abstract views. Once the data is gathered and vetted, however, calculating the cost-per-use in Excel is quite easy—by dividing the cost by the usage.

Gathering data on the more subjective criteria was only slightly more difficult than gathering usage and cost data. For our purposes, we developed a rubric (see Figure 1) of three levels on each of the three criteria: Ease of Use, Breadth/Audience, and Uniqueness to the Curriculum. The levels were defined by the Collection Development Librarian, based loosely on the definitions used by Foudy & McManus. While there was no piloting of this rubric or other methods to test validity, we agreed it would suit our purpose.

Rating	Ease of Use	Breadth of Audience	Uniqueness
1	Easy Most students can use both simple and advanced features without assistance; students routinely successfully find and access information.	Interdisciplinary audience The primary user group is very broad; it is used by students across several disciplines. The number of students who would be affected by cancellation would be high. It has a high impact on curriculum and teaching.	Totally unique This resource contains curriculum and teaching information not available anywhere else.
2	Moderate Students can figure out simple tasks on their own, but need coaching for advanced tasks; students have some difficulty finding or accessing information without help.	Disciplinary audience The primary user group is limited to the discipline. It may impact curriculum and teaching.	Somewhat unique This resource contains curriculum and teaching information which can be found elsewhere; or it contains the same information but has a uniquely useful search interface or metadata.
3	Difficult Students require coaching for even the simplest tasks; only expert, experienced users are able to find and access information without assistance.	Niche audience The number of students who would be affected by cancellation would be limited. It has a minimal impact on curriculum and teaching; it may be used only for faculty research.	Not unique This resource contains curriculum and teaching information widely or freely available elsewhere.

Figure 1. Rubric.

We had learned some lessons from previous attempts to gather librarian and faculty input. For instance, each serial item is assigned to a fund code representing a certain subject area; that fund is overseen by a subject-specialist librarian. In this round of feedback gathering, we asked our subject-specialist librarians to rate not only resources purchased using “their” funds, but also interdisciplinary or multidisciplinary resources that may be relevant to their fields. In addition, we used data validation techniques to ensure that the librarians provided one and only one of the three levels for each criteria, instead of variations thereof (e.g., 1.5 or 2a, 2b, 2c or even color codes). We emphasized that they had the opportunity to provide as much additional information as they liked in a text box, and that such information would be taken into consideration.

The primary purposes of analyzing data are to look for patterns and outliers, and to apply context, comparing like against like. Because of their inherent differences, particularly in measures of usage, we grouped the resources by broad types: individual e-journal subscriptions, e-journal packages, literature (or indexing) databases, and online reference resources (which included streaming media, given there were so few of these). The resources would be compared only to others of their own kind, thus avoiding the difficulty of comparing apples with oranges.

Because of the issues related to scale and references mentioned above, we decided to use percentile distributions or rankings to show where

any one resource falls among others of its type. The Excel formula PercentRank.inc enables easy calculation of the percent rank of any one value within a list or “array.” Simply calculating the percentile ranking was easiest for the cost, usage, and cost-per-use measures, with one exception. The direction of the scales differed among these three measures. While higher usage was better, lower cost and cost-per-use was better. To adjust for this discrepancy and make all the measures in the same direction, we subtracted the percentile rank for cost-per-use (and subsequently, the cost) from 1, which effectively reversed the direction, making those in the highest 75th percentile the best performing.

Additional calculations would be needed for the subjective measures, due in no small part to the very narrow range (1 to 3). We realized that of the three criteria mentioned above, uniqueness to the curriculum was most important to us, followed by breadth/audience, then ease of use. Thus, we weighted these ratings accordingly (3:2:1), and generated a weighted average. This composite score resulted in a wide enough range to apply the percentile rankings.

While percentile rankings do provide an efficient method of comparing resources, we added one more element to make our job easier. We used Excel’s feature of “conditional formatting” to apply a color scale to the values using a similar approach as the percentile rankings. The resulting spreadsheet (Figure 2) provides a quick example of the final list of resources with all of the data necessary to start making final decisions.

ORDER #	TITLE	Renewal Price	Subject	Resource Type	Liaison Ratings Composite Percentile Rank Reversed	Inflation Score Percentile Rank Reversed	CPU Percentile Rank Reversed	Composite Score	Status	Modified Price	Savings
o274630x	Database 14	\$2,638.49	Communication Studies	Database	0.52	0.79	0.71	0.67	Keep	\$2,638	\$0
o3378147	Database 15	\$15,846.56	Communication Studies	Database	0.9	0.24	0.86	0.67	Keep	\$15,847	\$0
o4686421	Database 36	\$4,236.61	Dance & Drama	Database	0.77	0.15	0.48	0.47	On Table	\$4,237	\$0
o125425x	Database 21	\$4,659.03	Economics	Database	0.52	0.14	0.65	0.44	On Table	\$4,659	\$0
o1048910	Database 45	\$13,334.84	English & Literature	Database	0.9	0.41	0.74	0.68	Keep	\$13,335	\$0
o103845x	Database 6	\$13,136.60	History	Database	0.16	0.27	0.40	0.28	On Table	\$13,137	\$0
o1050072	Database 34	\$13,136.60	History	Database	0.16	0.27	0.31	0.25	drop	\$0	\$13,137
o1583657	Database 42	\$3,867.11	Learning Technology	Database	0.77	0.53	0.68	0.66	Keep	\$3,867	\$0
o1774554	Database 44	\$1,887.32	Mathematics	Database	0.16	0.8	0.95	0.64	drop	\$0	\$1,887
o314690x	Database 75	\$9,345.15	Mathematics	Database	0	N/A	0.08	0.04	drop	\$0	\$9,345
o3762518	Database 49	\$3,771.63	Philosophy & Religious S	Database	0.52	0.76	0.28	0.52	On Table	\$3,772	\$0
o4468003x	Database 10	\$3,006.69	Philosophy & Religious S	Database	0.52	0.02	0.59	0.38	Keep	\$3,007	\$0
o1832098	Database 74	\$5,619.09	Political Science	Database	0.16	0.67	0.23	0.35	Drop	\$0	\$5,619
o4582354	Database 53	\$1,750.05	Political Science	Database	0.77	0.6	0.98	0.78	Keep	\$1,750	\$0
o4699154	Database 73	\$5,354.42	Political Science	Database	0.16	0.03	0.00	0.06	Drop	\$0	\$5,354
o2403018	Database 56	\$55,563.87	Psychology	Database	0.52	0.34	0.81	0.56	Keep	\$55,564	\$0
o3629739	Database 33	\$2,429.62	Psychology	Database	0.52	0.37	0.53	0.47	Keep	\$2,430	\$0
o3642665	Database 54	\$47,906.25	Psychology	Database	0.52	0.28	0.78	0.53	On Table	\$47,906	\$0
o377384x	Database 55	\$1,739.62	Psychology	Database	0.04	0.38	0.87	0.43	Keep	\$1,800	\$0

Figure 2. List of resources for final decisions.

Making Final Decisions

While it may seem easiest to evaluate resources based strictly and solely on the objective data, we understood that subjective information would be needed to make difficult decisions. We also recognized the importance of both objective and subjective information to meet our goal of holistic planning, through which we hoped to balance the needs of all stakeholders. Such planning requires trust between the collection development decision makers and the library's patron groups. To foster confidence in our actions, we planned ahead to enable smooth, clear communication and transparent decision making.

For this major deselection project, we found it very helpful to have a way to view big-picture effects as decisions were made, alongside a means to envision progress toward our goal of a specific savings amount. Using a single Excel file containing all the relevant data needed to make title-by-title decisions will enable you to develop different scenarios regarding what to cut to reach each target. In our case, a "Status" column for each item under consideration showed either "Keep" or "Drop"; and if "Drop," a calculation was automatically made to show the new price (\$0) and the savings (the renewal price). Additionally,

we developed summary tables of costs and savings by format and/or subject area to aid in reaching our goals of transparent and fair distribution of cuts. Excel offers a number of tools to help with this, including the SumIf function, which sums a value based on a specific criteria. In our case, we used SumIf to add up the savings for all items with both a status of "Drop" and certain fund code. This allows you to change the status of any number of resources and see the effect of these changes in real time on the distribution of costs and savings across the subject areas (see Figures 3 and 4). These features of Excel provide the tools to make it easier to communicate and negotiate with the key stakeholders, whether they are "squeaky wheels" or silent users. Communicating with our stakeholders was a major challenge. We needed to communicate with and consider the points of view of students, over 30 subject departments, subject librarians, the university administration, the library administration, and even vendors. There is also the silent user, the undergraduate student user, who is not always considered in such decisions. Compiling the data was immensely helpful. Most patrons, when shown the data that went into the decision, were supportive. Many were surprised by data, like low use, that contradicted their impressions of importance; a few were able to

point out flaws in our data or different ways to access the same information. Thanks to the data we collected, we were able to make our stakeholders understand our reasoning, even though they did not always agree with our

conclusions. The real-time scenario planning tools we created in Excel were also invaluable as we negotiated with stakeholders and incorporated feedback.

Department	Total Renewal Price for Department	Total Savings for Department	Total Percent Cut for Department
Biology	\$ 109,969.34	\$ 16,349.16	15%
Business	\$ 456,458.07	\$ 10,890.65	2%
Chemistry	\$ 182,255.14	\$ 15,876.74	9%
Dance & Drama	\$ 21,747.65	\$ -	0%
Economics	\$ 12,173.22	\$ 2,152.50	18%
Education	\$ 76,178.97	\$ -	0%
English & Literature	\$ 50,462.14	\$ -	0%
Geography	\$ 17,188.99	\$ 2,369.88	14%
Government Documents	\$ 222,427.32	\$ 98,158.37	44%
History	\$ 36,643.37	\$ 1,595.20	4%
Interdisciplinary	\$ 2,125,336.87	\$ 708,721.99	33%
Journalism	\$ 2,079.85	\$ -	0%
Library & Information Sciences	\$ 38,118.10	\$ -	0%
Mathematics	\$ 70,404.30	\$ 45,457.27	65%
Music	\$ 42,462.85	\$ 8,575.96	20%
Physics	\$ 212,903.55	\$ 42,486.33	20%
Political Science	\$ 39,837.63	\$ 7,263.89	18%
Psychology	\$ 157,636.11	\$ 11,499.98	7%
Sociology	\$ 60,656.33	\$ 12,815.68	21%
Visual Arts & Design	\$ 61,626.79	\$ -	0%

Figure 3. Distribution of savings by subject.

Total Savings	Total Modified Price	Total Renewal Price	% of Renewal Price
\$ 984,213.62	\$ 3,012,352.97	\$ 3,996,566.59	33%

Figure 4. Sum of all savings and costs.

Conclusion

Data-driven decision making takes planning, coordination, and documentation. Combining objective and subjective data is difficult and time-consuming, but it's worth it in the end. We do not believe you could do a very good job with just one or the other.

This type of project is detail-oriented, but also allows you to get a holistic view of the entire picture. You're considering not only title-by-title, but also the entire collection, by departmental and interdisciplinary needs, by acquisition method and item type, and, of course, by price.

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