



Applicability of Evidence-based Acquisition Model to Collection Development in Engineering Subjects

Mrs. Daniela Solomon, Case Western Reserve University

Daniela Solomon is Research Services Librarian for Biomedical Engineering, Civil Engineering, Electrical Engineering and Computer Science, Materials Science and Engineering, Mechanical and Aerospace Engineering at Kelvin Smith Library, Case Western Reserve University. She is interested in bibliometrics, altmetrics, data management, and library instruction.

Mr. Brian C. Gray, Case Western Reserve University

Brian C. Gray is the Team Leader for Research Services for the Kelvin Smith Library at Case Western Reserve University. He is the engineering librarian for chemical engineering and macromolecular science, and has covered various engineering disciplines since 2005. As Team Leader, he manages the overall collection budget for the library, and interacts highlight with vendors on new models of acquisitions. He has held leadership positions for the Library Leadership and Management Association (LLAMA) and the Academic Library Association of Ohio. He holds a B.S. Chemical Engineering (University of Akron), MLIS (Kent State University), and MBA (Case Western Reserve University).

Applicability of evidence-based acquisition model to collection development in engineering subjects

Abstract

This study presents the results of local implementation of evidence-based acquisition (EBA) models from several publishing vendors. The combination of decreasing funds for engineering monographs and a new library strategic goal of maximizing campus wide access to library collections, forced the engineering librarians to pilot alternative acquisition models that offer access to as much content as possible within the reduced budget. We identified criteria applicable to EBA model assessments and the limitations of each model within our library. For engineering disciplines we determined that EBA models provide significantly enhanced access to needed content, offer valuable insights into current campus information needs, and raise the level of library efficiency in collection development and technical services processing.

Introduction

The development and maintenance of relevant library collections that support engineering education and research experience many challenges. Foremost, the subscription costs of science, technology, engineering and medicine (STEM) journals and databases had reached an unsustainable level, with the annual inflation rate being much higher than in other disciplines [1]. Moreover, the number of publications supporting traditional engineering disciplines and new and/or interdisciplinary research is on the rise. Furthermore, the overall expansion of digital content availability lead to an increase in users' expectations for online access. However, during the last decades, annual collection development budgets in academic libraries have remained flat or have decreased in most cases. Due to the vital role that journals play in scholarly communications in engineering, journal subscriptions have priority in how libraries use collection budgets, resulting in a diminished capacity to buy other resources such as books, technical standards, multimedia, or data. Taken together, these trends can significantly reduce a library's ability to maintain adequate collections for engineering disciplines.

A great opportunity to expand access to digital content was made possible through a fundamental shift in the definition of library collections concept by including content that is accessed but not owned [2]. While this change applies to both electronic journals and books, it created diverse opportunities for increased access to electronic books (ebooks). The complex process of individual ebook title selection had quickly transitioned to ebook packages acquisition model [3]. Following a trend similar to e-journal subscriptions, early experimentation with ebook packages often proved to be unsustainable in terms of cost per use and the low percentage of titles that were used. Continuous budget cuts and increasing calls to improve library spending efficiency led to the development of new models for ebooks acquisitions based on user demands [4]. So far, two models have emerged - the patron-driven acquisition (PDA) model, also known as demand-driven acquisition (DDA), and the evidence-based acquisitions (EBA) or evidence-based selection (EBS) model.

Starting in the early 2000s, the demand-driven acquisition (DDA) model became increasingly common in academic libraries. The DDA model was initially used for print titles, but it quickly became a favorite for ebooks acquisitions. With this model, a librarian pre-selects a pool of titles from an aggregators' title list. Once the pool is selected, the title records are loaded into the library's online catalog and titles are purchased only when specific, pre-established usage criteria are met. Titles that reach accepted triggers are purchased automatically with or without staff mediation or oversight as long as pre-determined funds are still available. Implementation of a DDA program requires special consideration of specific criteria, such as the types of access permitted, the ease with which DDA title records integrate with the local cataloging and acquisition processes, the number and educational level of titles included in the pool, and whether or not interlibrary loan (ILL) is allowed [5]. This complex activity requires collaboration between several library departments [3].

The DDA model represents a profound shift from a "just in case" to a "just in time" approach to library collection development where users play an active role in the selection process. The increased users' power in the selection process was thought to lead to a quick depletion of available budgets [6], a decrease in library collections quality, and their departure from the long-term educational mission [7]. The DDA model also shifts the subject librarian role in collection development from selecting individual titles to creating ebook selection profiles [8]. The creation of profiles that closely match users' needs and library policies is imperative for the success of DDA programs and demands detailed knowledge of the local user community. Building this knowledge requires a greater emphasis on librarians' liaison, teaching, and research support activities [3].

The DDA model is seen as a cost saving tool with some advantages over traditional collection development practices. The expected advantages include increased electronic content, guaranteed usage of titles purchased, automatic acquisition processes, superior circulation rates, and savings in shelving space [6, 9]. Experimentations with DDA models revealed that a comprehensive assessment of such programs should use of a variety of metrics in order to gain a more granular understanding of program performance and the level of satisfaction of all stakeholders [10, 11]. Many DDA assessment studies have since concluded that the model fulfills librarian expectations and user needs [12], has a better cost per use than other traditional ebooks packages [13, 14], is advantageous for specific disciplines [13], and provides collection development benefits for academic libraries overall [15, 16]. Some studies assert, nevertheless, that there is still yet insufficient data to demonstrate conclusively the benefits of DDA over traditional collection development practices [17, 18].

As the popularity of DDA programs has increased, more issues have surfaced. On the technical side, long-term maintenance of the titles available in the consideration pool has proven to be a complex and costly issue for libraries [7]. From the collections side, since the aggregators control the access platform and the usage limits, the ebooks in this model are considered leased rather than purchased and this status does not resonate well with long-term collections development policies. Additionally, users have complained about

the ephemeral aspect of DDA titles and the imposed usage limits [10]. These issues led libraries to demand fair usage terms for ebooks to ensure perpetual access, unlimited simultaneous users, and digital rights management (DRM)-free content.

With publishers' support, such demands led to a new acquisition model that combined features requested by libraries and the cost-effectiveness of the DDA model. The new model, evidence-based acquisitions (EBA) or evidence-based selection (EBS), allows libraries to provide access to a large volume of digital content for an up-front fee. Ebook records are ingested into the local catalog for seamless navigation but the similarity ends there. First, most EBA ebooks are available DRM-free on the publishers' platform for a predetermined period. The up-front fee represents a percentage of the total value of the content. At the end of the year, librarians review the usage statistics and decide which titles to purchase and keep in perpetuity, with a total value up to the fee already paid. The entire fee is used to buy content at the end of the one-year period. Librarians have the option to purchase additional titles, beyond the initial fee, depending on the availability of supplemental funds. Records of the ebooks that were not purchased are subsequently discarded from the catalog. With the EBA model, publisher is guaranteed a certain amount of revenue and the library is not obliged to purchase what is not used.

Libraries that have implemented the EBA model came across additional advantages and unexpected challenges. The additional advantages include users' preference for the integrated search experience represented by the publisher platforms, as well as the value of collected usage statistics in informing additional library collection decisions [19]. The main challenges identified are related to the diverse vendor-provided usage statistics and their meaning. For example, some argue that statistics cannot differentiate between in-depth reading and the casual browsing [19] and, therefore, the numbers do not represent a good indicator of user preferences [20].

The library budget deterioration forced the authors – two engineering librarians from the same institution, to investigate the new acquisition models and evaluate their efficiency for engineering disciplines. A survey of published literature yielded many DDA model studies, but relatively few studies of the EBA model. Studies focusing specifically on implementation of these models to collections for STEM disciplines are even less. A Purdue study concluded that their print ILL DDA program was successful for science and engineering disciplines [21]. However, to our best knowledge, there is no study investigating the success of DDA or EBA models for the STEM disciplines. As the previous local ebooks DDA program was considered not successful for our library, the authors decided to focus exclusively on the ebooks EBA model for this study.

Local Environment and Librarian Motivation

Case Western Reserve University (CWRU) is ranked as a Doctoral University (Highest Research Activity) according to Carnegie Classification. FTE is approximately 11,000 with about 56% graduate students. The Case School of Engineering (CSE) consists of seven academic departments, just over 100 faculty, and 1,952 students (46% graduate students).

The Kelvin Smith Library (KSL) at CWRU supports the research and instruction needs of faculty, students and staff in the arts, humanities, sciences, engineering, and business disciplines, as well as the general undergraduate studies curriculum. Separate university libraries support schools of social work, law, and medicine. In addition, the university is a member of a state-wide library OhioLINK. As a world leader in academic library consortia, OhioLINK's 120 members have access to over 46 million books, more than 100 electronic research databases, over 24 million electronic journal articles, over 100,000 ebooks, and nearly 85,000 images, videos and sounds. CSE departments are supported by two research services librarians, both with engineering undergraduate degrees

KSL is not unique in facing collection development and budget challenges. Faculty and student research needs change regularly to leverage available research dollars, prepare students for new employment opportunities, and tackle new challenges or opportunities. Yet as new academic and research programs develop, libraries must continue to support both emerging and previously established programs. Information needs thus continue to expand.

One of the engineering librarians was hired early in 2005, and immediately cut 20% from the subscription budget in each of the next two fiscal years. Various methods have been used to work within the relatively flat engineering collection budget in the last dozen years, including buying little or no books, canceling more subscriptions, renegotiating subscription renewal costs, exploring new packages, joining new consortia, and committing to several year deals to lock-in renewal costs. Unlike many libraries, KSL has chosen not to break up large journal packages, since a majority of the titles are managed through OhioLINK and cost savings would not be realized without losing almost all of each package.

KSL has formalized a collection strategy over the last few years that makes processes clear, decisions data-driven, and provides for increased budget flexibility to support the increasing needs of interdisciplinary research. In the past, schools at the university were charged a fee to support various campus-wide shared services such as technology-support, libraries etc. In general, the amount from each school assigned to the library for collections was applied to the purchase of materials in those disciplines. The strict interpretation of the budget allocations left no ability for supporting interdisciplinary research, adapting to evolving overall needs of the entire university, or for filling resource gaps if a school or program experienced a poor enrollment and a lower budget. In general, library collection development decisions were driven by budget policies rather than by user need.

In 2011, KSL formed a task force consisting of faculty and several librarians. The goal was to create a collection and budget strategy that adapted with new research needs and reflected a fairness in meeting all faculty expectations for access to databases, journals, and books (i.e. prevent subscription inflation from overtaking the book budget). The task force proposed a plan that was approved by the Faculty Senate. The plan allowed librarians to decide how to allocate collection development budget dollars, since they

understand the broad view of all university needs and have access to resource usage and assessment data. The plan also established a purchasing ratio of 85% subscriptions (databases, journals, etc.) to 15% one-time purchases (books, videos, data, etc.). If during a fiscal year, inflation causes the subscriptions to exceed 85% of the entire collection budget, the library will plan for subscription cuts the next year to bring the ratio back to the defined ratio. Subscription costs, budget availability, and subscription cut savings are also forecasted several years in advance, so that subscription cuts are only done about every three years if a flat budgets persist.

During the same time period, KSL rolled out a new strategic plan that directly correlated library goals to the university's strategic plan. In addition, the balanced scorecard method was leveraged to show success by sharing metrics, results, data, and dashboards with the entire university community. This and a subsequent library strategic plan contained objectives tied specifically to metrics-driven collection development. Librarians explored user preferences in book format and ebook platform features. They also determined the best physical locations for print books (local library stacks, storage facility, or access through consortia memberships). Finally, the library wanted to increase book usage as measured by the percentage of books used versus the total bought, while also decreasing the cost per use of those books.

In order to add new engineering journal and database subscriptions, the librarians needed to find alternative methods to provide needed book content while tackling strategic objectives. New research areas also were developing from the university strategic plan, and thus new content was needed while maintaining access to the old subscriptions and books. Librarians were challenged to meet current research needs, while determining the platform and content preferences of faculty and students. Ebooks became the preferred, but not required, format for monograph content in this new information landscape.

KSL librarians have been experimenting with new collection models to overcome these challenges while also expanding access to more information. The library has experienced a flat collection budget for the past several years. Due to increasing journal and database subscription annual inflation, book purchasing models needed to be reimaged. First, the EBA model engineering librarians moved to collecting ebooks exclusively, as this was the preferred format by our users. Additionally, we consider that the cost per use for ebooks decreases at a higher rate than for the print books since ebooks have the potential to be accessed by more users. Moving towards ebooks also helped fulfill the library's strategic plan to increase access to content.

The library first experimented with DDA for print and ebooks. The library's primary book vendor Coutts was used, since the processing of purchases and cataloging were automated already. In the end, the library considered the pilot to not be successful for several reasons, including library users relied on the consortium catalog instead of the local library catalog and that it was hard to identify books in interdisciplinary areas that were highly needed. The other main challenge was estimating and budgeting the money needed to maintain DDA over time. The failure of the local DDA pilot motivated us to pilot

the EBA model that appeared to have the capacity to significantly enhance the collections content most needed by engineering researchers on our campus.

Local Pilot Programs Implementation and Results

Elsevier Pilot Programs 1 & 2

The first EBA program initiated at our library started in March 2016 with a set of standard ebooks packages published by Elsevier. Previously, the library had bought 724 reference and series titles directly on the ScienceDirect platform. In 2015, these titles received 4906 uses or an average of 6.8 uses per book. Every book had at least one use, and 39% of the books accounted for 80% of the use. This usage suggested to us that an evidence-based model could be successful given our user base.

Elsevier started offering evidence-based in 2009 and reports that through 2017, 523 customers have implemented at least one ebook package. An ebook package is a group of titles focused on a specific topic and published in the same calendar year, with no overlap between collections.

The engineering librarians hand-picked the 2013-2015 Engineering, Materials Science, and Plastic Engineering Hanser collections to be available on the ScienceDirect platform until March 2017. The collections included 742 titles valued at \$151,539 total. These research level titles were available DRM-free as downloadable PDF chapters. Elsevier provided MARC records through OCLC Worldshare to be uploaded in our catalog and were available in our discovery tool, Summon. The one-time access fee was \$13,061. At the end of the program, we recorded 127 (17% of 742) titles and 1,956 chapters with at least one use, valued at \$33,095. This translated into an average cost per used title of \$103 and cost per used chapter of \$7. We decided to go beyond the initial fee paid to access these collections and committed additional funds to purchase all the titles that were used at least once. From the usage data for calendar year 2017, we determined that about one third of the ebook usage originated from the ScienceDirect platform, with the rest originating from the library catalog, the discovery layer, or from links to other library resources.

We collected usage statistics every three months. Pleased with the usage we observed, we have decided to continue with the Elsevier EBS model for a second year starting with January 2017. For this second round of EBA, we selected four collections published in 2016, specifically the Chemical Engineering, Energy, Engineering, and Materials Science collections. The four collections included 418 titles valued at \$81,991 and made accessible for the initial fee of \$14,565. At the end of 2017, we recorded 84 titles (20% of 418) and 1,012 chapters with at least one usage, which represents an average cost per title of \$173 and a cost per chapter of \$14.

We concluded that the Elsevier EBS program covering engineering collections of interest offered us a good price per title and an excellent value per use. The usage statistics were easy to understand and use. This model also lessened acquisitions department workload, since there was no need for signing license agreements for each ebook title as was necessary previously when we purchased through a third party.

Users on campus preferred to access the ebooks on ScienceDirect more than on other platforms, and they also requested similar access to previously purchased Elsevier ebooks that were available online elsewhere. Among the accessed titles, there were many that addressed new research topics on campus for which the library does not have comprehensive collections.

Taylor & Francis CRC Pilot Program

In October 2016, we implemented EBA program from Taylor & Francis CRC, another well-known STEM publisher. At the time, CRC grouped ebooks in “netBase” collections by topic. Analyzing these collections, the librarians observed that many titles were included in multiple collections and the overlap made it difficult to apply a more granular approach to selecting smaller collections for the topics of local interest. In collaboration with the science librarians, we decided to combine our available funds and select the entire Sci-Tech collection, because it provided wide coverage of the science and engineering disciplines. The collection included 1,521 titles that were DRM-free and downloadable at the chapter level on the CRC platform until the end of September 2017. By our local selection standards, these titles are considered research or reference books. The total value of the Sci -Tech collection was \$358,459 and the initial access fee was \$27,348.

CRC implementation was not as streamlined as Elsevier. CRC provided MARC records to be uploaded to the library catalog. Not all of them, however, were available at the start of the program and this significantly reduced user discovery. CRC also decided to add more books to the selected collection after the one-year program was already in-progress. As a result the usage statistics were not consistent over the pilot period and lacked the ability to provide any insights into the use of CRC titles.

At the end of the program, we recorded 73 (5% of 1,521) titles with at least one use, from which 32 (43% of 73) titles were engineering specific. The total value of accessed titles was \$18,848, with the engineering titles being valued at \$7,830. For the engineering titles, the average cost per title was \$245 and the cost-per-use (CPU) was \$40. At the program’s conclusion, there was \$8,500 left in our account that we needed to use to purchase unused additional titles.

We were surprised by the low usage numbers observed, as CRC titles are usually valued by our users. We suspect that this was caused in part by the difficulties encountered with the MARC records provided by CRC and the variations in collection content over the time of the program. Titles in biomedical sciences appear to have been used the most, followed by chemistry, computer science and electrical engineering; however, we are not confident

with these numbers, since there were some inconsistencies in the reports we collected every three months. The funds unused at the conclusion of the program were used to purchase additional titles selected by librarians.

EBSCO Pilot Program

In June 2016, our library started a subscription to the EBSCO Academic eBooks Collection, planning to treat it similarly to an EBA program and evaluate total usage and cost per title usage before deciding on future actions. We also planned that, if the subscription was discontinued after the first year, the titles used most often would be considered for local purchase.

A subscription fee provided access to nearly 180,000 multidisciplinary DRM ebooks valued at over \$12,000,000. Titles in this collection were published between 1994 and 2015 by 92 publishers. According to our selection criteria, the education levels of the titles varied between general interest and research level, with most intended for the undergraduate level. The subscription allowed for unlimited simultaneous users as well as time-limited downloading with a personal EBSCO account. EBSCO provided MARC records through OCLC WorldShare to be ingested into the library catalog, and the titles were also available in our discovery tool, Summon. While the subscription was purchased with general library funds and not engineering book money, the engineering librarians analyzed only titles classified by EBSCO as technology, engineering, and computer science. There were approximately 12,200 titles for these engineering collections, representing about 7% of the total ebooks collection.

At the end of May 2017, we recorded 168 (1.3% of 12,200) titles used at least one time, and a total of 432 online views. The value of the used titles was estimated at \$28,498, with a cost of \$66 per online view. Usage reports provided by EBSCO also include an active use category that counts the number of downloads and print and email requests. When analyzed together, online views combined with active uses (96) for the engineering titles brought the CPU down to \$54.

As with the Elsevier pilot program, the EBSCO subscription offered an excellent price per unit and improved coverage of collections gaps. Surprisingly, most of the computer science titles used were guides for using specific software packages, the type of resources thought to be well covered by our Safari subscription. EBSCO titles in technology and engineering were used more than those in computer science (128 vs 40 titles), with many of these titles covering topics leaning towards the “humanistic” side of technology, such as history, education, ethics, and business. While these may not necessarily be considered engineering titles, the topics are extremely valuable to engineering education in general and are not very well represented in our collections. Another benefit we identified is that many of the used titles were provided by publishers that we do not regularly consider for acquisitions, such as Trans Tech Publications, World Scientific, Nova Science Publishers, and Smithers Rapra. Despite the fact that this

EBSCO content is licensed and not owned, we concluded in the end that this subscription was valuable and worth continuing.

When comparing title usage trends between the three EBA programs implemented at our library, we observed that individual Elsevier titles were used more than EBSCO titles and were more likely to be used multiple times (Figure 1). The CRC usage counts, however, were insufficient for creating a truly representative sample. We presume that this difference can be explained by the difference in educational level of the Elsevier and EBSCO ebooks, with Elsevier titles aligning better with our institution's focus on research.

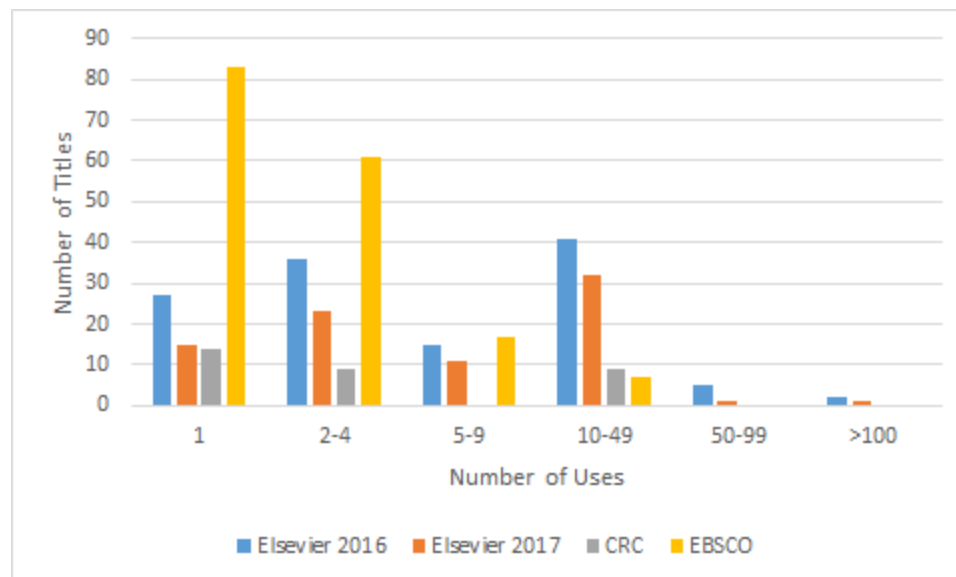


Figure 1. Titles usage for the four acquisition initiatives implemented at our library (Elsevier 2016 refers to the first Elsevier EBA pilot, and Elsevier 2017 refers to the second Elsevier EBA pilot)

Unfortunately, a direct usage comparison between EBA titles and print books purchased in previous years is not possible because of the differences in the meaning of “usage” concept. Access to print book is more limited due to physical location and long borrowing periods (e.g., faculty at our institution can get books for one year and renew). Elsevier and CRC ebooks, however, allow concurrent users and thus the content is available all the time. The single user, DRM enforced EBSCO ebooks also are accessible for longer periods of time than the print books. Moreover, the average cost per book for librarian-selected titles versus those purchased through these new acquisitions models has been comparable over the past five years.

Conclusions

Implementation of the new acquisition models for engineering subjects allowed engineering librarians at our institution to more efficiently use a decreasing monographs budget while also meeting the library's strategic planning objectives to increase access to content. Our main criteria of success was achieving a lower average cost per user session and a lower average cost per title used. Based on our analysis, Elsevier's EBA

and EBSCO's subscription programs proved to be successful for engineering subjects and will be continued in the future. The CRC program was deemed unsuccessful, and the program was discontinued. Our local statistics show that the 100% use of the ebooks purchased through the Elsevier EBA models is a great improvement over the percentage of print titles purchased in the past, wherein only 50% were used after 3-5 years. Additionally, each additional use further lowers the price per use.

The success of an EBA model depends on the specific characteristics of each vendor's offering. Clearly defined collections that do not overlap help librarians during the implementation phase. The availability of good MARC records for loading into the library catalog and discovery layers is imperative. In order to collect consistent usage statistics it is critical that the title collection remain unmodified for the duration of the program period. Pilot programs should encompass a full academic year cycle so that usage statistics are representative of the current campus needs. However, since the statistics styles varies between publishers, we have ascertained that it is not useful to compare the value of each EBA offering.

The successful implementation of an EBA model also depends on several local factors. Firstly, the collaboration between subject librarians and acquisitions and cataloging staff is crucial during the platform, licensing, and other technical decision phases. The structure of usage statistics offered by the vendors should be clear to all librarians stakeholders involved so that the content and value analyses are consistent across disciplines and among various librarians. Finally, the subject librarians' careful selection of EBA ebooks packages is critical in order to ensure that title topics and educational levels correspond to the local institutional and user needs.

EBA models are effective in fulfilling user needs. These models offer access to a large volume of content and help in quickly building collections for new research topics or filling existing collection gaps. Our users appreciated having easier access to the titles of interest. During the implementation process, we decided to purchase any title that is no longer available at the end of an EBA program if a user complains, but we have not encountered this situation. Data show that our engineering users prefer DRM-free ebooks over print format when both were available in the catalog. Data also show increased usage for both ebooks and ejournals on the vendor platforms.

Our analysis also identified several challenges associated with the EBA model. As EBA models are offered mostly by the larger publishers, it may result in a reduced number of publishers available. Additionally, the use of consortium catalogs may also reduce discoverability, since EBA titles may only be listed and available from local institutional collections. Discoverability may also be limited by users who inadvertently limit their searches to a single vendor platform or website.

The EBA model also provides benefits for subject librarians, as program implementation is less demanding on their time, and the evaluation process provides librarians with usage data that is helpful for decision-making. EBA usage statistics offers in depth insight into the current user needs and emerging areas of research. Implementing the EBA model

also creates opportunities for collaboration with other subject or cataloguing librarians, and potentially other campus libraries. Cataloging and acquisitions librarians also find the EBA model easier to process, as records management is simplified compared to the DDA models. In DDA models, catalog records are managed at individual title level and require constant monitoring and processing as titles are purchased or removed from the catalog. With EBA, title records can be loaded for the whole duration of the program without concerns for requiring modifications. At the end of the year, all records are removed from the system, and only records for purchased items are loaded back into the catalog. The selection of standard packages instead of composite collections also reduces the time spent managing MARC records in the local catalog and discovery systems.

Our analysis helped us determine that for engineering, the evidence-based acquisitions model was a better match for meeting user preferences and needs. EBA model ebook collections are hosted on platforms most utilized by CWRU engineering researchers, students and faculty, and they offer features preferred by our users. In addition, the process allowed us to initiate interdisciplinary and new research area collections without ballooning the total price.

Future research plans include looking at usage data of the various initiatives, and monitoring price per use over a longer time period.

References

- [1] S. Bosch and K. Henderson, "New World, Same Model," *Library Journal*, vol. 142, no. 7, p. 40, 2017.
- [2] M. Levine-Clark, "Access to everything: Building the future academic library collection," *portal: Libraries and the Academy*, vol. 14, no. 3, pp. 425-437, 2014.
- [3] S. Pinfield, "The changing role of subject librarians in academic libraries," *Journal of librarianship and information science*, vol. 33, no. 1, pp. 32-38, 2001.
- [4] C. Tenopir, "New Directions for Collections," *Library Journal* vol. 135, no. 19, 2010.
- [5] R. Johnson, "Purchasing options in patron-driven acquisitions," *Against the Grain*, vol. 23, no. 3, 2011.
- [6] S. Polanka, "Patron-Driven Acquisition," *Booklist*, vol. 105, no. 9-10, 2009.
- [7] M. Levine-Clark, "Developing a Model for Long-Term Management of Demand-Driven Acquisitions," *Against the Grain*, vol. 23, no. 3, 2011.
- [8] T. H. Teper, L. M. Rudasill, and L. N. Wiley, "Patron-Driven Acquisitions and the Research Library," *Qualitative and Quantitative Methods in Libraries*, vol. 5, no. 4, pp. 11-21, 2016.
- [9] P. Spitzform, "Patron-Driven Acquisition: Collecting as if Money and Space Mean Something," *Against the Grain*, vol. 23, no. 3, 2011.
- [10] L. Costello, *Evaluating demand-driven acquisitions*. Cambridge, MA, Kidlington, UK: Chandos Publishing, 2017.
- [11] J. C. Dewland and A. See, "Patron Driven Acquisitions Determining the Metrics for Success " *Library Resources & Technical Services*, vol. 59, no. 1, pp. 13-13, 2015.
- [12] G. Badia, "Patron-Driven Acquisition of E-Books Satisfies Users' Needs While Also Building the Library's Collection," *Evidence Based Library and Information Practice*, vol. 8, no. 3, pp. 58-60, 2013.

- [13] G. Herrera, "Deliver the eBooks Your Patrons and Selectors Both Want! PDA Program at the University of Mississippi," *Serials Librarian*, vol. 63, no. 2, pp. 178-6, 2012.
- [14] A. Lannon and D. McKinnon, "Business E-books: What Can Be Learned from Vendor Supplied Statistics?," *Journal of Business & Finance Librarianship* vol. 18, no. 2, pp. 89-99, 2013.
- [15] K. S. Fischer, M. Wright, K. Clatanoff, H. Barton, and E. Shreeves, "Give 'em what they want: A one-year study of unmediated patron-driven acquisition of e-books," *College & Research Libraries*, vol. 73, no. 5, pp. 469-492, 2012.
- [16] G. Wiersma, R. Glazier, D. Pan, and S. Spratt, "Balancing Bananas: Collection Assessment of Patron-Driven Acquisitions," presented at the Where Do We Go From Here? Charleston Conference Proceedings 2015, 2016.
- [17] A. Fry, "Conventional Wisdom or Faulty Logic? The Recent Literature on Monograph Use and E-book Acquisition," *Library Philosophy and Practice*, 2015.
- [18] J.-M. Sens and A. J. Fonseca, "A Skeptic's View of Patron-Driven Acquisitions: Is it Time to ask the Tough Questions?," *Technical Services Quarterly*, vol. 30, no. 4, pp. 359-371, 2013.
- [19] J. Thomas and G. Chilton, "Library e-book platforms are broken: let's fix them," in *Academic e-books: publishers, librarians, and users*, S. M. Ward, R. S. Freeman, and J. M. Nixon, Eds. West Lafayette, Indiana: Purdue University Press, 2016, pp. 249-262.
- [20] S. J. Spratt, G. Wiersma, R. Glazier, and D. Pan, "Exploring the Evidence in Evidence-Based Acquisition," *The Serials Librarian*, vol. 72, no. 1-4, pp. 183-189, 2017.
- [21] M. S. Bracke, "Science and Technology Books on Demand: A Decade of Patron-Driven Collection Development, Part 2," *Collection Management*, vol. 35, no. 3-4, pp. 142-150, 2010.