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Giving Them What They Need (and Want): Computer Science and Engineering Customers

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Introduction

Attracting students and faculty to library collections and facilities continues to challenge academic librarians. Many are confronted by students who seek information from searches of Internet resources rather than using materials provided by subscriptions to scholarly materials or searching an appropriate subject database. Use of reference services and circulating collections are in decline at most academic libraries.

The University of Texas at Dallas is making a concerted effort to investigate how collections are used in students and faculty in computer science and engineering programs. The overarching assumption guiding our services was that most computer science and engineering students were reluctant library customers and used Google to search for resources and information. It was thought that they were unlikely to use the print collections or other scholarly electronic resources.

In addition to the collections, the library is investigating how to create an environment which attracts students to the building. Contacts with a student group, surveys, and direct communication is guiding these efforts.

The University

The University of Texas at Dallas was formed from a research center and developed by the creators of Texas Instruments over 40 years ago. Most programs within the University are extremely quantitative. Over 65% of students are enrolled in natural sciences, management or engineering/computer science while 32% of doctoral students are enrolled in engineering/computer science. Enrollment is above 17,000 students and the campus provides 130 programs including 29 doctoral degrees.

Prior to 1998, most circulating library materials were selected by faculty members across all disciplines. Each of the University's seven schools was allocated funds and the distribution of those funds varied. Some schools allocated every faculty member a budget while other schools had a coordinator which coordinated selection. Generally, the collection techniques used were biased and did not support all courses or all research. While many years the library funded a meager approval plan, often the program fell victim to low budgets. The approval plan sometimes had to be cancelled mid-year or was not funded. A library fee was initiated based on credit enrollment. The fee funded the materials budget and stabilized the financial situation during the 1990s.

Collection Assessment

In 1999, the Library adopted a liaison program which coordinated selection through the professional staff. Each school was assigned a liaison to select materials. An updated collection development policy provided a foundation for collection resources available to faculty and students. Because of past collection development practices, the library needed to adopt an assessment strategy to collect and deaccession materials which did not support the curriculum or research efforts. Using assessment techniques, librarians developed strategies for improving the collections in order to best meet the needs of their schools. As the University continued to increase enrollment, funds were available to purchase new materials as well as archival resources. The University of Texas System began to purchase electronic resources consortially making a medium-sized library able to meet information demands more than at any time in its young history.

As a young library, the University administration concentrated an overall volume count rather than analyzing the quality of the materials being acquired and comparing the collection to other academic libraries. Past selection is now being evaluated using standardized assessment techniques. Current assessment activities enable the selectors to capture how the collection is being used. Some of the concerns were if the library was acquiring the best books in the subject as determined by review,

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if the books selected support current research while anticipating future needs, if use of the collection varied by format (print vs. electronic), if some degrees require the acquisition of historic materials, or if customer selection was a useful approach to acquiring materials. As space becomes a factor in the library, the acquisition of volumes rather than quality takes a toll. The library is faced with determining the worth of materials many of which are outside the need of today's University.

Libraries try to acquire relevant materials that support their mission. Each library has a variety of means to assess its collections. Customers leave a trail of data which shows what items are used and with what level of intensity. In particular, the library can generate reports from its catalog system (Voyager by Ex Libris) and mine its usage statistics. The system enables the librarian to see what titles were used and over time what items were never used. Reports can show what year the items were published and if newer items are most likely to be used over older materials across call number ranges. For technological subjects, usage of newer materials is very strong. This pattern might vary by discipline. A report can show which subject areas were checked out or browsed. The library collects browse statistics for materials left on tables. Reviewing subject usage provides information for future selection. For libraries with approval plans, a report can determine if approval books are more likely to be checked out as compared to those hand selected by librarians. A similar analysis can be made comparing librarian vs. customer e-book selection. Other types of reports could look at the interval between acquisition and the first use and the number of checkouts over time.

Secondly, the liaisons review materials borrowed through interlibrary loan. While some customers might be looking for specific information, the need for a specific book and requesting the book shows a strong demand from a customer for a title. The statistics provided from borrowing transactions give the liaison information about important gaps in the collection. Requests are analyzed to decide if the title should be purchased. Some borrowing requests can be of an individual nature and be supplementary to a subject making the purchase unlikely. In addition, interlibrary loan service can acquire a request rather than borrow the title. The purchase of a request immediate fills the gap and can create goodwill with the customer.

In addition to evaluating monographic materials, analyzing the quality of the journal collection is essential. Determining where faculty members are publishing their research enables the librarian to check if the journals collection is meeting their needs. A review of a journal collection can determine if titles should be added or cancelled. A similar review of who is citing the faculty can determine related journal titles that expand on the initial journal content.

Another set of statistics which reveals information about customer demand for journals comes from the library's link resolver (SFX). The statistics provided by SFX generate a list of journals requested from customers which are not available electronically. The librarian can review the list to determine which titles are available in print within the collection, which citations were selected for titles that are embargoed, and which archives should be considered for purchase. The liaison regularly reviews the statistics provided by the link resolver.

In a university which is growing, the creation of new degree plans and evaluating the resources needed to support them creates a unique way to assess the quality of the existing collection as well as identifying future needs. An evaluation of the monographs, journals, and other types of resources is an opportunity to compare the collection against other universities and core lists of materials in a discipline.

In addition to the statistics discussed above, other information can be used for new degrees. If new faculty members are hired, the liaison sets up an appointment to discuss their needs which can fall outside the previous collection development policy. When a new degree is proposed, additional courses are created which require different information resources. A review of the *Journal Citation Reports* by relevant category determines if the library subscribes to the core journals within a discipline (other than arts and humanities). Reviewing collection patterns for a university which already holds the degree can be useful in identifying needs or gaps within the journal collection.

For the computer science and engineering programs, most of these assessment techniques have been used and continue to provide information on the quality of materials purchased over time. In particular, the journal analysis showed that the collection supported the curriculum and the SFX statistics show few titles that are not already held. When the liaison receives suggestions for the collection, often the titles are already held or subscriptions can begin.

While assessment techniques do not always show if the collection is meeting the needs of customers, it does provide information about the quality of the resources provided. Further analysis is needed to determine how the collection is used.

Evaluation: What is Used?

At present, the library does not have an approval plan except to acquire Texana materials. A continuing evaluation of the print collection provides insight into whether new books are checked out and in what intensity. Fewer print titles are being purchased and it is important to make the best selections. The library's website supports a "Suggest a Title" form which enables customers to send a request to the liaisons for consideration. Some requested items fall outside the collection development policy while others suggest titles which should be purchased or are newly published.

Annually, librarians review reports that show which titles purchased and whether they have been checked out or browsed. The evaluation of the ongoing use of the item becomes particularly meaningful after the library has owned the print title for 5 or more years. For example, the books purchased in 2008 were evaluated each year since they were acquired. The analysis showed that 38% of the titles were never checked out and 27% were checked out one time in about 3 ½ years. On average, each title from 2008 has circulated 1.7 times. The librarians can also look at what subject areas were checked out to help guide their future purchases.

In the case of engineering and computer science, the use of the print materials is particularly strong and is surprising given the initial assumption of how these students might use or not use the library. The usage of the 2008 print materials for computer science/engineering was over 20% and exceeds the size of the student body in those programs. The major areas include computer science, electronic and electrical engineering, and telecommunications.

What about e-books? Does format matter? What about patron driven selection? The library is heavily involved in the acquisition of e-books. The library provides access to e-books through databases, through the direct selection of titles by the selector, and through the customer selection model available through EBL. Vendors supply a variety of usage statistics involving the access to or the purchasing of electronic books.

For the case of computer science and engineering, the library subscribes to the complete e-book collection of over 12,000 titles from ProQuest's Safari Tech Books Online. Each title is added to the library catalog with a link to the full-text of the title. Between 2010 and August 2011, over 55% of the titles were used at least once. The average use was 55 pages for each accessed title. The 10,000 sessions were approximately 15 minutes in length. One title had over 30,000 page views while the top 260 titles had over 242,000 page views in 20 months. As part of the subscription, the library receives access to over 300 streaming videos. The demand for these items is high with nearly 25,000 views in 20 months. The major element that illustrates the importance of these electronic books and streaming videos to our customers is that for the last few years, the library had to add an extra seat to the contract (at this point the library subscribes to 10 simultaneous seats) because of the size of the turnaways. While the collection subscription to Safari Tech includes older and newer items, the demand across all subjects provided by the database remains very high.

Customer selection of e-books is a major component in the acquisitions of library materials. The library has provided customer selection through EBL since 2008 and experimented with other models including ebrary and Elsevier. The EBL program included profiling by Library of Congress classification area, by publisher, and by cost per title. It also involved selecting the trigger for purchase based on the number of times a title was accessed before it was purchased.

Since 2008, customers have selected over 500 titles. The selections were used an average of 6.87 times. While the computer science/engineering school consists of 18% of the student body, over 30% of EBL customer selections were in the subject areas supporting their degree plans and represents 37% of all EBL usage.

Customer selection compares favorably to librarian selection of e-books. The liaisons have used EBL as a supplier for electronic books since 2005. Initially, the librarians selected from title lists provided by EBL, but migrated to selection through Blackwell and later YBP as soon as the program was established. The librarian can select from other e-book vendors such as ebrary, Wiley, and Sage through YBP and can compare costs as well as single vs. multiple access to specific titles.

Use of the librarian selections is stronger than print demand but not as high as those titles picked by customers. The librarian's EBL acquisitions averaged 4.57 uses per title. One interesting observation is that about 30% of the titles selected by customers were not used again after the initial year of purchase. The same statistic is seen in librarian selections where 45% of the titles were used in the first year of selection and not used since. This observation should be studied over time to determine if a pattern emerges for e-book usage. Finally, the librarians decided to purchase the EBL titles after the second use. At present, over 800 titles have been selected once and not accessed again which resulted in a savings of over $75,000 for titles not purchased.

The assessment of how our customers are using the collection shows the strong demand for electronic books. At this time, the decision was made to maximize the purchase of electronic over the print format. Whenever possible, the selection of the e-book often can be purchased in unlimited concurrent users rather than single use thereby improving access to the title. Providing e-books eliminates vandalism or theft of the book. EBL titles can be downloaded for a couple of days onto various readers making them more adaptable to traveling customers.

While the library remains a hybrid model with a collection size of over 2.5 million titles with 1,000,000 e-books, the computer science and engineering customers are rapidly adapting to the electronic format. While the demand for electronic appears to outweigh the demand for printed books, the circulation of print volumes remains very high in computer science/engineering areas. The liaisons expect that students might be finding information and resources online using Google or other browsers, but the demand for materials provided by the Library is significant. The same patterns of use are not being observed in other disciplines. Use of electronic material is growing in demand, but fails to find the audience that is observed in computer science/engineering.

What Else Do Customers Want?

The liaisons support an active program to promote and provide instruction on library resources and services. An orientation is provided to computer science and engineering students. The program includes basic access information such as demonstrating the catalog, using Interlibrary Loan Services, and connecting to the library's link resolver. In addition, the session includes an introduction to major databases and periodical collections including Inspec, IEEE, ACM, Scopus, and Safari Tech. The librarians create posters and PowerPoint slides for various plasma screens in the library and the engineering building. During the session, participants are given various products including pens, tablets, erasers, and other giveaways. Sometimes publishers can provide promotional products. Food is always an important enticement for students.

While everyone cannot attend a session, the library provides tutorials/videos on many aspects of the content provided in the orientation. These training videos are located on the library website near the resources or within a LibGuide. The online training complements the resources provided by the publisher.

The liaisons make appointments with faculty to promote library services as well as to determine any unmet needs. Individual appointments have worked well as the faculty member can reserve the time for the appointment. The librarian can quickly provide an update to a new resource or train anyone on a mini instruction session.

Some of the best efforts to show off library programs are events. The library works with the Provost's Office to recognize the writing or editing of books at an annual author event. Each faculty author receives a framed photograph taken with the book which is a party favor. The event provides the liaisons an opportunity to meet faculty members, to discuss their research and writings, to find out how they use the collections, and to determine if any part of the library needs further development.

Another aspect of the author event has been to recognize newly tenured faculty members. The library program asks the tenured faculty member to select a book meaningful to them and to write a paragraph about why it was important to their career or research. As with other successful events, refreshments are served. Finally liaisons contact faculty members or other researchers when a grant announcement is made. The librarian congratulates the person while determining if additional library support is needed.

Recently, the Library created a Student Advisory Group. The Group was developed to improve communication with the library and determine how their needs could be met outside of administering standard surveys. The Group includes representatives from every school. The librarians prepare questions for lively discussions about what the students want for furniture, collections, and other services. The sessions include how the students use the library or find information. Food is always served. The Group has been particularly successful. While hours and textbook acquisitions are sometimes discussed without positive resolution for the students, other needs have been met quickly. The students have recommended new types of equipment, new furniture and electrical connections, and new study rooms equipped with computers and presentation equipment as well as specific software and whiteboards. Rooms are reserved and checked out as needed. The library remains responsive to each suggestion which works to develop a level of trust and encourages open communication.

Other needs from our computer science and engineering students indicate that these and other students want to study or work in groups or teams. They want flexible furniture configurations including tables and chairs that can be moved easily. Bean bag chairs are popular. Strong wireless capabilities are critical for most students as well as mobile services. Students indicate that computer speed is essential. The library also provides laptops and multiple computers are often observed within study rooms.

The Future

The assumption was wrong. The computer science and engineering students use the library and its materials. They keep the liaison busy meeting their resource needs. The library provides a hybrid collection model and is challenged by the overall demand for materials.

The library continues to market its services and collections. Despite constant efforts, customers continue to be surprised by the breadth and depth of the materials available. Staff is met with customers that are mystified by finding resources and teaching the "basics" remains a fundamental part of service. Marketing library services and collections seems to make a difference. Outreach at all levels finds an audience.

Outreach to customers is essential. Future projects will involve other schools to determine what they say they need and to find out how they find information and the connection to the services and collections provided by the library.