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Reinventing the Wheel: The Microsoft Access Alternative

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Introduction and Background

The April 2001 issue of *Library Journal* documents the use of twenty-seven integrated library systems (ILS).¹ While most libraries find a happy fit with one of these systems, others either cannot afford a fully integrated system, or cannot fit the pre-configured mold set by any ILS. The Acquisitions Department of **Long Island University-Brooklyn Campus** Library found that local accounting needs hindered the use of the rigid Acquisitions Module of the ILS, which offered little in the way of statistical reporting. Therefore, the Acquisitions Department looked to create a local database with **Microsoft Office** that was available on our computer desktops due to university-wide licensing. This article documents our experimentation with designing and modifying various databases with **Microsoft Access 97** and **2000** from September 1999 through August 2001.

The Acquisitions staff is responsible not only for ordering, receiving, and invoicing of monograph and audiovisual materials, but also for maintaining all periodicals and standing order functions including check-in, claiming, renewals and invoicing. Before exploring the possible use of **Access** to meet these duties, a manual Kardex file was used for check-in; **Microsoft Excel** spreadsheets for accounting and statistics; a paper on-order card file for avoiding duplicates and processing notifications; and a paper purchase-order file for invoicing and auditing.

The Acquisitions Department began to look at options for automating its functions and eliminating the cumbersome manual system in 1999. We theorized that migrating to a homegrown Acquisitions Module would be preferable to forcing ourselves into an ILS module that could not meet local reporting needs. We also believed that the labor involved in constructing and modifying local databases would be a worthwhile investment and would improve efficiency in the long run.

Review of Literature

In his review of **MS Access 97**, **Teng** notes that while it "was not designed specifically for libraries, it proves to be an excellent database program for staff use in such an environment."² His recommendation is based on its superior reporting ability, flexibility and compatibility. The only drawback he noted was its limited network ability. **Harker**, in discussing the creation of a Web-based list of available full-text journals, documented this problem.³ In her study, she reports that the demands of a large number of multiple users caused the Access tables to freeze. Since the **Brooklyn Campus** Library's Acquisitions Department is small and no more than three simultaneous users would be expected, we decided that the threat of freezing tables was not sufficient to discourage our testing of the software.

The flexibility of **Access 97** was documented in a wide-variety of applications as a response to ILS problems or rigidity. Most of the applications focus on serials management issues. Both **Rhine**⁴ and **Reichardt**⁵ relate the creation of **Access** databases to assess journal collections to assist in retention decision-making. At the **University of Florida** Health Sciences Center Library, **Rhine** used **Access** to tabulate data based on objective information (e.g. in-house use) and calculated the journal's worth. **Access** was used to network the file and to produce reports. In a similar project, **Reichardt** at **The Citadel** reallocated 50% of her budget based on the analysis and produced a report for the library's Website.

Neither institution reported any tables freezing.

The most striking implementation of **Access** was in the creation of a serials check-in module at **Pennsylvania State University**. **Access** recommended itself to them due to the ease of design, "table import, management, and form design with no code programming."⁶ They created a detailed check-in screen and loaded the title information from a data file provided by their vendors. Also, they designed a query to identify missing or late issues for claiming. With these two adaptations, they fashioned a complete module.

It appears that there is no report of a library using **Access** as a full acquisitions module. For this reason, we decided to begin testing slowly and limited ourselves to a trial run automating only the standing order and periodical titles.

First Generation

In September 1999, the Acquisitions Department began to consider automating the standing order check-in process and all serials invoicing. However, we were not prepared to move forward with periodicals check-in. Therefore, two databases were designed separating standing order titles from periodicals. The standing order database would handle all aspects while the periodicals database would be limited to invoicing. Previously, ordering and invoicing were maintained with an **Excel** spreadsheet and a Kardex file for receiving.

The **Standing Order Database** was created as a single user check-in system. The database consisted of four forms linked by purchase order number and seven tables that formatted information linked to toggle buttons to simplify data entry. The **Title Form** (Diagram 1) was the core of the database. It was compiled from printed vendor lists and invoices and contained basic bibliographical and vendor information. In addition, action and processing fields were included to specify the handling and shelving directions (e.g. cataloged separately). For collection development purposes, a program code field was included that linked the title to the academic program it supported.

Diagram 1: Standing Order Database Title Form

The **Accounts Form** mimicked the purchase order structure of our ILS system by focusing on the basic ordering information (Dia-

continued on page 22

Reinventing the Wheel from page 20

gram 2). The **Invoice Form** (Diagram 3) was created as a ledger to list paid invoices with a purchase order link to title information to allow for tracking title expenditures. It reproduced the former **Excel** spreadsheets.

Diagram 2: Standing Order Database Accounts Form

Diagram 3: Standing Order Database Invoice Form

The **Standing Order Check-in Form** (Diagram 4) was designed to simplify check-in procedure. When a volume was received the system provided call number information requested by the Cataloging Department to reduce their processing time. The form also allowed us to track the publishing pattern for a title and fulfilled our needs for monthly statistical reporting.

Diagram 4: Standing Order Database Check-in Form

The **Periodicals Account Database** was derived from the **Standing Order Database** but with a greater emphasis on invoicing information while check-in functions were to temporarily be continued in the Kardex file. It also differed in that the **Account Form** in this database was title driven rather than purchase order driven (Diagram 5). Format codes were added to differentiate between print and microform subscriptions and allowed separate records for each

subscription. The **Periodical Invoice Form** (Diagram 6) also differed and allowed for a variety of invoice types (e.g. supplemental).

Diagram 5: Periodicals Account Database Account Form

Diagram 6: Periodicals Accounts Database Invoice Form

After a year of experimentation, it was evident that the **Microsoft Access 97** databases were a considerable improvement over the previous manual system and fulfilled the increasing need for statistical reporting that our ILS could not handle. **Access'** simple query structure enabled us to generate added volume counts and to calculate the actual costs of titles with multiple volumes or invoices for the budget year. The Acquisitions Department could also generate collection development statistics for all programs. This was an important part of the budget allocation and program accreditation process. For example, a listing was generated of all Nursing and Allied Health Professions journals and standing order titles and expenditures for our Nursing program using the program code feature. Using **Access** was the only way we could produce this type of report without manual counting and time-consuming effort.

Second Generation

With the successful use of the databases mentioned above, the Acquisitions Department began to expand its use of **Access 97**. We decided to combine the above databases and add a separate one to handle monographic acquisitions to create a two-part Acquisitions Module. We optimized the use of the **Standing Order Database** by reconfiguring it into a single, user-friendly, multi-format title form. This eliminated the need for many forms linked by a data field by placing all the needed information onto one form. Organizing this form was paramount otherwise a cumbersome and confusing jumble would result. Consequently, the form was laid out in sections to facilitate its usefulness.

continued on page 24

Reinventing the Wheel from page 22

The differences between the standing order and periodical databases allowed us to simultaneously test two versions and explore various functions. The more successful design elements of the previous versions were incorporated into the **Periodicals/Standing Order Database**. The resulting database used a title driven **Accounts Form** (Diagram 7) with check-in capabilities for standing orders materials. This allowed for the multiple formats of a title with the type field, improved check-in functionality with more drop down menus and increased reporting. Periodical check-in would be handled using the shared multi-campus ILS Serials Module to enhance resource sharing. The construction of this new database required no re-keying. All title information was uploaded from the earlier versions.

Diagram 7: Periodicals/Standing Order Database Accounts Form

The **Periodicals/Standing Orders Database** proved an excellent starting point for the design of the Monographs Database. The Acquisitions Department began to develop a **Monograph Order Database** to be used as a full acquisitions module. The main form of this database was the **Monographic Format Order Form** that was a single title based form (Diagram 8) divided into three areas: bibliographic information, ordering, and invoicing. Pull-down menus were added for the order status, program code, and vendor to streamline data entry.

Endnotes

1. Jeff Barry, "Automated System Marketplace 2001," *Library Journal* 126.6 (2001): 468.
2. Ronald Teng, "Microsoft Access 97," *Information Technology and Libraries* 16.3 (1997): 141.
3. Karen R. Harker, "Order Out of Chaos: Using a Web Database to Manage Access to Electronic Journals," *Library Computing* 18.1 (1999): 59-67.
4. Leonard Rhine, "The Development of a Journal Evaluation Database Using Microsoft Access," *Serials Review* 22.4 (1996): 27-30.
5. Karen Reichardt, "Using Microsoft Access for Journal Collection Management," *The Serials Librarian* 37.4 (2000): 69-78.
6. Mark Horan, "Building a Serials Check-in Datafile Using Microsoft Access and Paper Check-in Principles," *Serials Review* 26.1 (2000): 26.
7. Eva Holtsmark, "Access with Access," *Library Computing* 18.1 (1999): 77.

Diagram 8: Monograph Orders Database
Monographic Format Title Form

Two important areas for automating monographs were requestor notifications and program spending. Notifications are memorandums sent to faculty members informing them that a title requested has been received. The simple addition of a field containing the name of the requestor resolved this issue. The same program code contained in the previous generation was again used to track funds spent on academic programs for accreditation reports and budget allocation.

Future Plans and Conclusion

The main hurdle or problem we encountered was the occasional freezing of the forms. We observed that this happened only when there was a problem with the server in which the database was housed. During the 2000-2001 academic year, the staff experienced approximately two weeks of down time. As a precaution, we decided to back up the database daily.

Automation made the department more efficient and effective, but it also vastly increased the time the staff spent in front of a computer. Therefore, to minimize the risk of eyestrain, larger fonts and lighter colors were utilized. Access's flexibility allows us to fine-tune the databases, as we feel necessary. This is a large gain over using a pre-configured ILS Acquisitions Module.

In Holtsmark's **Microsoft Access 2000** software review,⁷ she reports on its ability to allow global access via the Web to the databases. Linking the **Monograph Orders Database** as a read-only file to the Acquisitions Department's Web page would allow the department to move out of the back room. This would increase our communication with our patrons and improve our public relations. In August 2001, the databases were migrated into **Access 2000**.

The Acquisitions Department experimentation with **Microsoft Access** proved successful. The invested time was minor compared to the ease of use, and the elimination of manual file and statistical counts, and the streamlining of all department functions. The flexibility of **Access** was a relief from using rigid systems. Minor adjustments were made to fine tune the form and make the staff more comfortable with the databases.

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continued on page 26

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Traditional library and information science (LIS) theory and practice are well developed and have come to be used by e-commerce companies to sell goods and services. The axiom of the marketplace is that sellers need buyers to be able to find what they want — effortlessly. In the information world, people with information want people needing it to be able to find and access it easily. Last summer I worked as an intern at **Amazon.com**, assigning browse nodes to nodeless **ASINs** in the toy & baby stores. What this really means is I applied subject indexing to merchandise, utilizing the in-house taxonomy, with the goal of improving the information retrieval.

Amazon.com's goal, besides the obvious one of profitability and making Wall Street happy, is for a customer to locate needed information or to purchase goods easily. This requires robust taxonomies, called browse trees in the language of Amazonia. The items in the **Amazon.com** catalog are all assigned an **Amazon Special Identification Number (ASIN)** and every browse leaf node has its own ID number. I spent the summer connecting **ASINs** to all applicable browse nodes using **MS Excel** spreadsheets.

Amazon.com has two types of stores. For the Books, Music and Video (BMV) stores, they use cataloging and subject terms direct from the specific industry. All other merchandise is sold through "hardline" stores, which requires a person (me) to assign browse nodes (index) and subject terms to each item individually. For the toy store, in addition to the "category" browse tree, there are "age range" and "brand" browse trees, which makes indexing toys a greater challenge. The browse structures are not faceted but are hierarchical.

The browse trees have main branches and leaf

nodes. Each leaf node is assigned a specific number in the database and when a customer clicks on "category" or "age range," the different branches are shown. For example, the board game **Monopoly** would be assigned the leaf node: Toys > Categories > Board Games > Classic Games. A customer could also find it through the age-range categories. Unless a searcher knows the age-range suggested by the manufacturer there is a bit more guess-work involved. **Monopoly** is recommended for 8 and up and so the game would surface in three age ranges: 8-11, 12-14 and grownups. It also would be listed under two leaf nodes in each age range: games > board games and games > classics. This game is also searchable as **Monopoly** or by the brand name. **Parker Brothers** and **Hasbro** both hold brands to **Monopoly**. The brand branch gives an additional two places to find the game: Parker Brothers > Family Game Night and Hasbro > Family Game Night. The total number of leaf nodes assigned to **Monopoly** would be nine. Can you imagine assigning 9 LC codes to a single book?

A consumer searching **Amazon.com** would think that the items are co-located in many different places. Each item obviously only has one home in the warehouse, such as in a library. The necessity of cataloging items in a broad array of places in an e-commerce site validated my LIS education: items must be organized in many different ways to be understandable to the users. Additionally, the browse structure must be flexible enough to handle fluctuating inventory and consumer interest. (The toy industry is notorious for items blooming and dying in popularity very quickly.) The application of LIS theory and practice is alive and well on the **Amazon.com** site.

Rumors from page 16

Speaking of which, I was sitting on the **Reference Desk** yesterday and a desperate undergraduate student with that look in her eyes that said "this is due tomorrow and why didn't I start this earlier" came up to me looking for a book for a project she was doing. As luck would have it, our library had the book (hallelujah!) in two formats — print and electronic. Sadly, the print book was checked out so I thought that she would jump at the **e-Book**. Not so! This student was willing to drive across

town (to another library, no less) to have the print book. I was shocked! "I want to hold it in my hands," she said, "and skim it so I can quote from it." I am not making this up. Of course, I know, as my father would say, that "the standard error of estimate of an observation of one is one," but still ... This is one look at a library patron up close.

As we go to press, some sad news. **Gilles** and **Sylvia Rochefoucauld's** oldest daughter, **Aude**, was killed in an accident March 30. Our heartfelt sympathy goes to them and to their entire family.

Poking around to find **ATG** back in 1992 (can you believe that was ten years ago?) to see who we were talking about, here are a few of the **Rumors** from the first issue of the year (v.4#1) (**ATG** had five issues back then, was 48 pages, cost \$25 a year, and **Rumors** was less than two pages long!) — **Jolanda von Hagen** had left **Springer Verlag**, **Ameritech** had bought **NOTIS**, **Christine Lamb** was named Director of the **Faxon Institute**, **Audrey Melkin** had left **Wiley** for **Henry Holt**, **Ruzicka Bindery** had changed its name to **Southeast Library Bindery, Inc.**, and **Gary Shirk** had just been made President/COO of **Yankee Book Peddler**. And that's not all and it's just the first issue.