CASE 2

Defining and Formalizing a Procedure for Archiving the Digital Version of the *Schedule of Classes* at the University of Michigan

AUTHOR: **NANCY DEROMEDI**
Associate Archivist, Bentley Historical Library,
University of Michigan (deromedi@umich.edu)

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ISSUE: Forming a partnership with a key administrative unit that had not been to date a receptive partner on campus. The issue was raising the awareness of the archival considerations as the unit transitioned from a hybrid system of digital and paper to a solely digital process.

KEYWORDS: Administrative information systems, Custodial issues, Data integrity issues, Implementation planning

Institutional Context

The University of Michigan was established in Detroit in 1817, and relocated to Ann Arbor in 1837. In addition to the main Ann Arbor campus, the University of Michigan has two satellite campuses. The University of Michigan-Flint opened in 1956, and the University of Michigan-Dearborn followed in 1958. In 2007, the total university enrollment for all three campuses approximates 55,000 undergraduate and graduate students. The University is comprised of 19 schools and colleges. In the last academic year, over 13,000 degrees were awarded. The university research expenditures total over $700,000 million.[1]

The University Library has nineteen libraries within its system and several independent libraries including the Bentley Historical Library. Established in 1935 by the University of Michigan Regents, the Bentley Historical Library has two functions: to serve as the official archives of the University and to document the history of the state of Michigan and the activities of its people, organizations and voluntary associations. The Bentley is comprised of three divisions: the Michigan Historical Collections, the University Archives and Records Program, and Access and Reference Services. The Bentley Library reports to the Provost and Executive Vice President for Academic Affairs. Bentley Library staff that were involved at some level in this case study included Francis Blouin, Nancy Bartlett, Brian Williams and Nancy Deromedi.

Issue

Forming a partnership with a key administrative unit that had not been to date a receptive partner on campus. The issue was raising the awareness of the archival considerations as the unit transitioned from a hybrid system of digital and paper to a solely digital process.

Background

Distributed every Monday during the regular academic year, *The University Record* is the University of Michigan's faculty and staff newspaper. Throughout winter term 2003, a series of articles ran highlighted the fact that academic and administrative units planned to cut 10% of their budgets due to the reduction in 2004 state appropriations.[2]
In the March 31, 2003 *Record*, there was a small mention in a larger article that caught the attention of the university archives staff. It was reported that the "reduction of printing costs will include eliminating the printing of the schedule of classes." This story was of particular interest to the University Archives and Records Program of the Bentley Library because the library had a complete run of all printed class schedules. These were often called on by students and former students who needed information to reconstruct

[1] Did you Know?…, University of Michigan Communicator's Forum, [http://mmd.umich.edu/forum/know.html] (Last viewed 11/27/07).
[2] Katie Gazella, "University plans for budget cuts," *University Record*, March 3, 2003.

transcript information for certification purposes or to locate the name of an instructor. Within a couple of days of the announcement, archivists of the Bentley Library scheduled a meeting with the University Registrar, Paul Robinson.[3] The purpose of the meeting was to "ensure that there would be a plan for capturing a digital version of each *Schedule of Classes* produced in the future."[4]

The *Schedule of Classes*

The *Schedule of Classes* is the official university record that specifies–by academic unit– the title of the classes that will be taught each semester by time, place and instructor. It is considered a vital university record. The University Archives holds the official versions of the *Schedule of Classes* dating from 1926. In its seventy-eight year history, the record of classes taught within a specific term has had three titles—*Schedule of Classes*, *Schedule of Courses* and *Time Schedule*. The *Schedule of Classes* serves to confirm that a particular class was offered and provides evidence of the university's compliance with stated degree program requirements. It is a record that has been under the stewardship of the Office of the Registrar since the 1963/1964 academic years. Until the announcement to stop printing a paper record, the format for the *Schedule of Classes* seemed to change very little. There were, however, technological and cultural developments that would allow the Registrar to cease producing a paper-based publication.

B**usiness Process: Past**

Students registering for classes via CRISP computer terminals.

[3] Paul Robinson became university registrar in May 2001. Senior Vice Provost for Academic Affairs notes that Robinson is known "for building consensus and for establishing strong working relationships with other offices and academic units." (quote taken from *Robinson recommended for registrar*, The University Record, May 21, 2001.) Prior to Robinson's appointment, the university archives staff meet with the former university registrar about digital content and came against an management style with clear territorial ownership and no desire to form a partnership of any type.

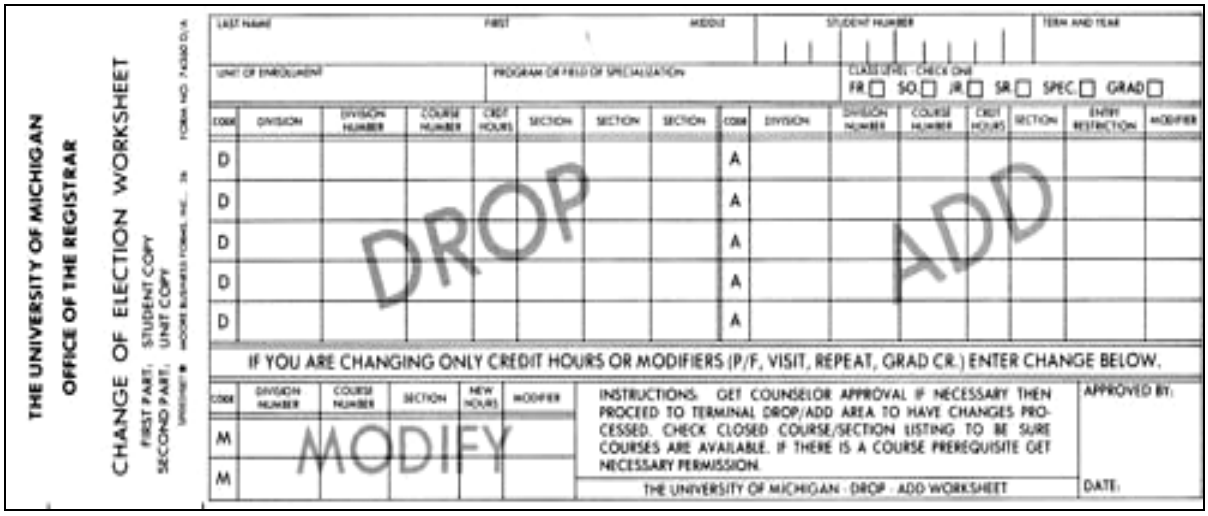
[4] Email Communication, Nancy Deromedi to Paul Robinson, April 4, 2003.

CRISP

The first major shift in how registration and class data was managed occurred in June 1973. This is when CRISP (Computer Registration Involving Student Participation) was introduced to students. Until the summer of 1973, registration for classes meant long lines and a lot of waiting. First, students manually filled out a form that was turned in during the registration period.[5] The forms were then gathered and manually coded by clerks in the Registrar's office.

Once the forms were coded, they were sent to the Data Systems Center (DSC) for machine processing. Academic units were then provided with a list of students who had registered for classes. On the first scheduled day of class, students would report to the classes to find out whether they were on the class list. If they were not on the list, they needed to either add, override, or find another class to take. Consequently, CRISP grew out of students' frustration over "obsolete information" during the registration process[6]. The general availability of an accurate list of classes that included time, location, credit hours, and instructor, was vital to the success of this project.

CRISP began as a student project. During Winter term 1972, students in a computer science class developed the idea for what was described as "an on-line conversational system." The project was brought to the attention of university president Robben Fleming. The president, in turn, appointed and charged a special study committee to act on the idea. He instructed the committee "to coordinate and monitor the development of the CRISP system from an end user's point of view."[7]



Registration form that students used with the CRISP system.

[5] Registration usually took place the first two days before the official start of the term.
[6] CRISP, Computer Center Publications, p. 5
[7] CRISP, Computer Center Publications, p. 5

CRISP was important because it signaled at the highest administrative level that accurate and up-to-date data for "student registration" was a priority. The appointment of a committee by the university president also revealed that the registration process needed to be efficient and effective not only from the administration's point-of-view but more importantly from the "end-user" or student's perspective.

The Internet brought about the second major technological and cultural change. The printed class list had been a born-digital document—created by extracting data from the student administration database (SDB). The compilation of the data, however, had circulated only in paper form. In 1994, the Schedule of Classes was first available online. This coincided with the unveiling of the public Internet. The Internet instantly provided an alternative publication channel that allowed the record to be more up-to-date than the version that was sent to the printing office to be printed and bound. Within a few years, the Internet raised expectations on campus for direct access to "timely" data.

Printed and Web Publication Process: Paper Version Becomes By-Product of Digital Process

The dual publication system seemed to satisfy the various user communities. Students had quickly adapted to the online version as many of the other student business functions had migrated to a web portal as well. The on-line version also had clear advantages over the printed version. It was the version that was updated daily and was available from any computer on or off campus.

The printed version, however, also satisfied those who liked to thumb through the newspaper quality pages and highlight specific sections of the publication. The printed version was also still considered the archival version. The moment the printed version was returned from the printing press, however, it was immediately out-of-date. So, when faced with the need to cut costs due to foreseen reductions in the state's allocation, the Registrar questioned the practice of creating both an online and printed versions of the record. The Registrar was quite sure that primary end user, students, would not miss the printed version. He was, however, keenly aware of the need to create a permanent and authentic record and he was concerned about how a digital record would be archived.

Defining a New Process

Members of the University Archives staff met with the Registrar and his staff shortly after the cost cutting article ran in the *University Record*. The first meeting was largely a discussion about the Registrar's plan and considerations in the digital environment. He applauded the university archives for its proactive and immediate response to the mention of the Schedule of Classes in the *University Record.* Part of the discussion included deconstructing the record: What elements truly comprise the record and who were the owners of the information? This procedure illustrated to our staff that part of the process

of transitioning from the hybrid paper/digital system to a solely digital system was to define the record.

Working Out a Process with Archival Considerations in Mind

At a follow-up meeting at the Bentley Historical Library, the Registrar's staff outlined what they thought would be the process for transferring a digital version of the schedule of classes to the university archives. They noted that they would create the record as a Word or PDF file and place the record on CD-ROM for eventual transfer to the archives. Registrar staff noted that they had one main requirement, which was that the archival record would be easily accessible by their own office staff and by others who needed access to the information including current and former students.

Our response to the outline for the archival version of the Schedule of classes was to advise the staff to think of the entire process. We emphasized the integrity of the digital record over-time and the continuity of the procedure through time. We pointed to the university archives guidelines for records in digital form which focused on such issues as identification of the record and authoritative source, the need to document procedures and assign responsibilities and the need to consider the long-term viability of the records. We suggested that the Registrar's staff look at the Dublin Core elements and agreed that PDF could be used with a caveat that our staff would "continue to monitor file formats in terms of long-term preservation."[8] Over the course of the next six months, the Registrar's office staff worked on a formal procedure based on our discussions and on the guidelines for records in digital form. The procedure was ultimately called the Bentley Archiving Procedure.

At the final working meeting, copies of the printed *Schedule of Classes* and the new draft procedure were handed out. The procedure document included information about the data source for the creation of the *Schedule of Classes* —when it was refreshed and what day the archived version would be extracted from the active administrative database, assignment of responsibilities, backup procedures, definition of academic year, file format and transfer schedule. The procedures document was discussed and agreed upon. The digital version of the *Schedule of Classes* would now serve as the authoritative and archival version of the record. The record would be extracted from the active student administration database by staff in the Registrar's office on the last day of the term.[9] It was decided that PDF would be the best file format. An explicit transfer schedule was also agreed upon.

Archives as Custodian

While the university registrar maintains its own server, custody of the digital files could have remained with the Registrar's Office. The agreement might have been written so

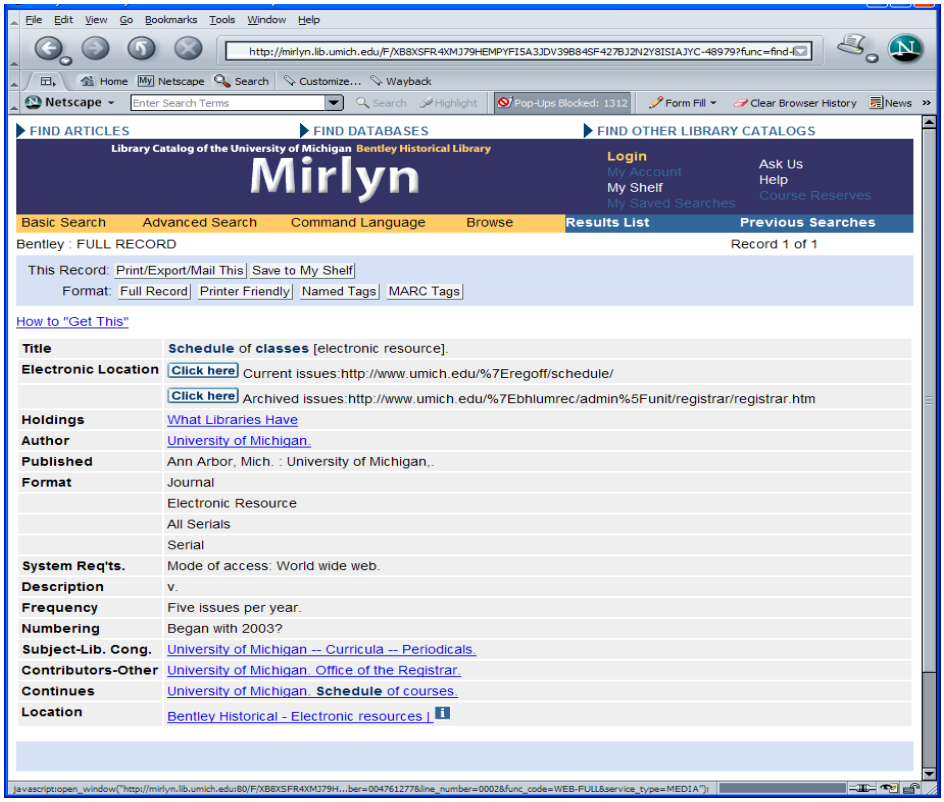
[8] Email Communication, Nancy Deromedi to Brian Kerr, Debbie Harju, September 17, 2003.
[9] The Registrar's staff determined that the last day of the term was the best through a focus group.

that the University Archives would describe and point to the files maintained by the office of origin. However, the university archives views the custody of the digital files as an important aspect of its mission—even in the digital era. For this reason, storage space on spinning disk was secured for the archival versions of the Schedule of Classes. It was decided that two separate storage spaces on the Michigan "tree" would best suit the needs of access and preservation. Both areas are maintained by the university's central information technology division. One stipulation the Registrar's Office had in the new process was that the archival version would be accessible by the office and by others online.

The storage spaces mimic the basic organizational structure of the university. Thus, the *Schedule of Classes* is located in the path:

admin_unit/registrar/schedule_classes/academic_year.

A HTML page serves as the interface to the digital files. This page was created by the university archives staff and is viewed as the page will maintain a permanent URL. This access page is linked both from the Bentley Library and the Office of the Registrar's website. It is also the page that is linked from the MARC record. The MARC record incorporates both the past "printed" schedule of classes as well as a link to the interface for the digital *Schedule of Classes*. The preservation space is essentially a dark archive--viewable only by a limited number of staff.



MARC catalog record for *Schedule of Classes*.

Analysis

July 2005 marked the first transfer from the Registrar's office of the official digital version of the Schedule of Classes. The transfer schedule includes a built-in lag of one full academic period.[10] Thus, the transfer included the *Schedule of Classes* for Fall 2003, Winter 2004, Spring 2004 and Spring/Summer 2004. The University Archives staff was first notified through e-mail that the transfer was ready, and once we responded, the transfer occurred. The archives staff then checked the files, made backup copies, accessioned the records and posted the files to the Bentley Library interface.[11] Once this process was completed, the archives staff acknowledged the accession, which triggered another staff member in the Registrar's information technology staff to remove the files from their server. Once the files were removed, the process was considered complete. The Registrar's office maintains a pointer from its website to the Bentley Library's archival version.

The university archives staff sees some very good outcomes of how the transition to digital occurred within this office. The first is a solid working relationship with the Registrar's office. From the very start, the office was keenly interested in collaborating with the archives and was open to discussion. The second important outcome is that the process and procedures document will be used as a model for other offices that transition to digital formats. This example is premised on good stewardship of data and on an awareness of the importance of data. Most notably, the Registrar's office acknowledged its responsibility and worked in concert with the archives.

[10] The academic year starts Fall term and full academic period includes Fall, Winter, Spring/Summer and Summer terms.
[11] Accessions are tracked in a FileMaker database called BEAL.