Analog v. Google in the CMS: RSS Feeds to the Rescue!

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With users on college campus increasingly turning to the Internet for research and scholarship, it is important for college libraries to be proactive in advertising their services and collections in that online environment. Indeed, when students are online using the Course Management System (CMS) for their classes, the ubiquitous Google is only a click away. To maintain relevancy in this information-competitive environment, libraries must find new and creative ways of advertising materials and services. Given the budget situation on many campuses, monies to fund any additional library initiatives are often hard to justify. It must be acknowledged, though, that a considerable amount of money and expertise is already invested in the maintenance of library print collections. By introducing subject-specific RSS feeds of new library materials into the campus CMS, librarians can begin to (re-)establish the library as the intellectual hub of the (e-)campus community while targeting and serving a specific user group at the time of need. In meeting the needs of their users in this way, librarians also further the mission of the library and the institution.

Course management systems have become mandatory applications at colleges and universities. Despite the large investments that many institutions have made in CMSs, even at advanced institutions the faculty adoption rate is only about 50 percent (Sausner 2005, 59). Many faculty may agree with Richard Granieir, associate professor at Furman University, that by placing links to library content on the CMS page for his classes, it will be much more likely that his students will utilize better sources of information then they would via Google. However, progress in this area has been slow. Faculty members and CMS administrators do not neglect to put library content in the CMS because they think it useless. Instead, their reluctance to add library content stems from time limitations. Granieir believes that by getting the library involved, the CMS can help the course software realize its fill potential (Carlson 2003). A study at Cornell University Library published in 2004 showed that only 45 percent of faculty had library content in their class CMS pages; however, an additional 34 percent would like to add some (Rieger, Horne, and Revals 2004, 207). Faculty appear willing to add library content when appropriate if it is not too much of a burden on them. In order to make it easier for faculty members to add library content into the CMS, some colleges have created special software which al-

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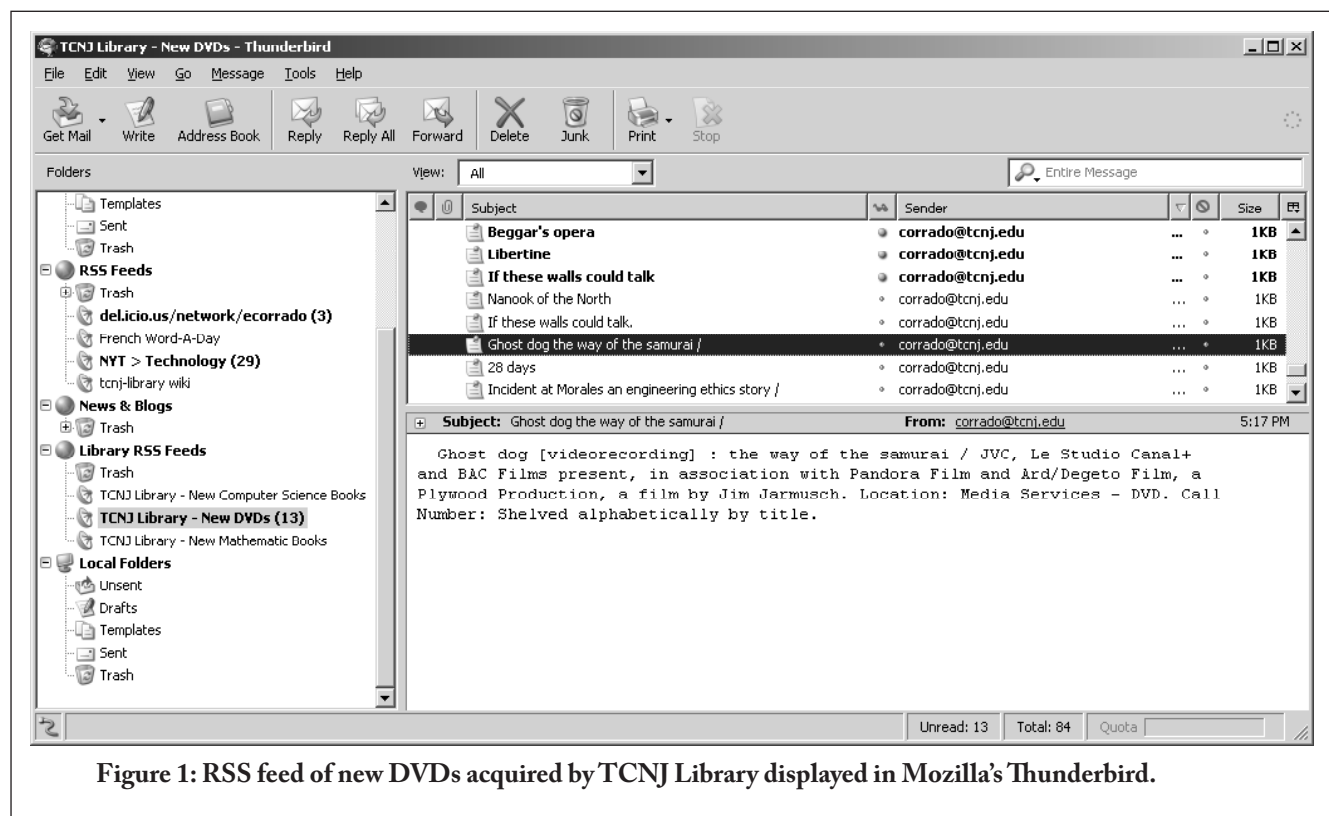
Figure 1: RSS feed of new DVDs acquired by TCNJ Library displayed in Mozilla's Thunderbird.

lows faculty members to easily add content to course pages. One example of this is Linkmaker that was created at American University.

In this paper, we will discuss the processes involved in creating RSS feeds of new library acquisitions, and relay experiences with getting the feeds to display in the CMS. We will also explore the benefits of implementing a functionality such as this, and will suggest other uses for new RSS-related technologies that advertise the library in the online environment and in the CMS.

The Use of RSS Feeds by The College of New Jersey Library

In early summer 2005, the systems librarian at The College of New Jersey had the idea of creating RSS feeds of new library acquisitions. These feeds would be subject-specific, and would be made available to users seamlessly online. To advertise library holdings in the online environment, it was decided to display the feeds prominently within the campus CMS. The RSS feeds of new acquisitions would give instructors the capability to set up a new module in the homepage for the CMS for their course. Every time a student or the instructor opened the course page, he or she would see the RSS feeds for on-topic materials with hyperlinked headlines leading directly into the

library's OPAC. In its implementation, this project would address several of the top ten ways for libraries to integrate with the CMS that were suggested by SWITCH (Southeastern Wisconsin Information Technology Exchange 2002).

Why RSS?

RSS is a special XML format designed to syndicate news headlines and other constantly updating content over the Internet. RSS can stand for RDF Site Summary (RSS 0.9, 1.0), Rich Site Summary (RSS 0.9x), or Really Simple Syndication (RSS 2.0) (Winer 2005). Although all of these varieties call themselves "RSS," they are not necessarily compatible. The ability of all iterations of RSS to manage constantly updating information makes RSS feeds a convenient way to push out information from the library catalog and to make that information visible to users in the form of hyperlinked headlines and descriptions.

Typically, there are two ways to view RSS feeds. The first requires the use of a client aggregator that can be downloaded to a user's desktop. The aggregator is similar to a Web browser, but handles RSS instead of HTML. The user inserts the URL for the feed into the aggregator; normally the URL will have an .xml or .rss extension. The user then opens the aggregator to view

**Figure 2: French Studies subject guide in TCNJ Library Web pages. An RSS feed from a
"word-a-day" blog and an RSS feed from the language-learning pages at About.com
are visible on the right-hand side of the page.**

the feeds, which are composed of hyperlinked headlines and a short descriptive text. See Figure 1 for a sample RSS feed displayed in Mozilla's Thunderbird email client and RSS aggregator. The second method displays the RSS feeds automatically in a Web page; no client aggregator is necessary. See Figure 2 for an example of RSS feeds automatically displaying in TCNJ Library's French Studies subject guide. Of these two methods, the former requires active effort on the part of the user for the RSS feeds to be downloaded and viewed. The latter is the basis for this library-related idea, as it only requires users to open a Web page. In the case of this project, the Web page in question is one that is already necessary for a class and presumably will already be opened regularly. Since this second method is less labor-intensive or obtrusive for the user, it is preferable to advertise new library acquisitions through this kind of arrangement (Byrne 2005). Embedding the information in the user's workflow has already been the focus of some articles, and using the CMS as an advertising

venue seemed like a good way to have a captive audience of sorts (Dempsey 2005).

Preliminary Technical Considerations
When considering the initial creation of RSS feeds of new library acquisitions for the local CMS, several preliminary considerations were kept in mind. First, the desirability of such a feature was explored. TCNJ Library uses the Integrated Library System (ILS) called Voyager from Ex Libris (formerly from Endeavor). The systems librarian had already installed Michael Doran's "New Book List" which allows patrons to search for new materials. Since the list was well received, there was reason to believe that patrons were interested in learning about new library acquisitions. The systems librarian also had informal discussions with key stakeholders including other librarians, classroom faculty, students, and people from the IT Department. Because all seemed interested, the project was deemed worthy of pursuit.

Although there appeared to be interest, little was available in the way of funding. Staff time was the only resource that could potentially be allocated to such a project. Therefore, as a second step, the systems librarian tried to determine if it would be possible to build such a project without any dedicated funding. While some other Voyager sites have since implemented their own versions of library acquisitions RSS feeds, in early summer 2005, no one had done anything similar. It was possible to generate data necessary for creating RSS feeds by extracting information from Voyager using SQL*Plus. The college Web developer agreed to let the library use a student programmer who had worked on RSS feeds for other projects on campus. The student programmer had experience creating RSS feeds using Perl scripts, and would be able to apply that knowledge to the project at hand. With the confirmation that the project could indeed be carried out given the budgetary restrictions, and with the perception that the feeds would be appreciated by the users, work was undertaken.

Specifics Behind RSS Feed Creation

After determining that the new acquisitions RSS feed project could go ahead, each of the three steps for creating the feeds had to be decided in some detail. A method had to be devised for retrieving the appropriate data from the library catalog, a way of converting that data to RSS feeds had to be created, and the RSS feeds had to be able to appear in the CMS. Again, the goal of this particular project was to get relevant lists of recent and available acquisitions to display prominently within the CMS page for a given class on a given subject. RSS feeds allow content producers to broadcast their information in a way that will be painlessly retrievable (Fichter 2004, 53). TCNJ has its own homegrown course management system called Simple Online Courseware System (SOCS). Other CMSs such as Blackboard had already allowed professors to display RSS feeds inside

the CMS page. The IT personnel working on SOCS were receptive to the idea of improving the local system by adding a similar RSS feature, that could in turn, be used to display the RSS feeds of new library acquisitions.

While working out the specifics of the RSS feed creation, it was incumbent upon the systems librarian to make certain technical decisions. One fundamental aspect of the project was that the works appearing in the RSS feeds would be library acquisitions that were new. Furthermore, only books that were fully processed and ready for checkout were to appear in the RSS feeds; this would avoid patron confusion and frustration with finding a citation for a work that was still in process. After consulting with Technical Services, the systems librarian found that it can take as long as three days after being cataloged for an item to be processed and shelved. Therefore, a book with an item record created between three and sixty days prior would be considered "new" for the purpose of this project.

Next, the problem of dividing out the RSS feeds by subject needed to be addressed. These different feeds, divided by subject, are known as channels. A number of options, including using department-specific acquisition fund codes or Library of Congress Subject Headings, were considered. Materials purchased with one set of funds were not necessarily on a topic related to the department that ordered them, since faculty or selectors may choose a work for purchase that is over a complementary topic. Subject headings, which are unlinked hierarchically in the ILS in use at TCNJ, were not a straightforward way to pull together all works on a given broad topic. In the end, the decision was made to use call numbers to divide the subject feeds. Call numbers proved to be the least labor-intensive method of automatically grouping items; they were also extremely accurate. Furthermore, the use of call numbers as the basis for the subject feeds did not require any additional steps to be added to the workflow of cataloging or acquisitions staff.

It was also necessary to determine what would display for each item that would be part of the feed. RSS "channels", or feeds, are composed of discrete items with a "'title', a 'link' (URL) and 'description'" (Tennant 2003). In this paper, we will refer to these elements of the

Table 1: Examples of RSS feeds at TCNJ Library (from http://www.tcnj.edu/~library/rss/rss_technicaldetails.html)	
Title (Topic)	**URL**
New Anthropology Books	http://www.tcnj.edu/~library/rss/anthropology.xml
New Art Books	http://www.tcnj.edu/~library/rss/art.xml
New Computer Science Books	http://www.tcnj.edu/~library/rss/compsci.xml
New Criminology Books	http://www.tcnj.edu/~library/rss/criminology.xml
New DVDs	http://www.tcnj.edu/~library/rss/dvd.xml

items in the RSS feeds as hyperlinked headlines and descriptions. Since the feeds were being created directly from bibliographic records added to the OPAC, the information that was the basis for the feeds was already encoded in a standard way using MARC. For the purpose of the hyperlinked headline, it was decided with the input of Public Services librarians to display the work's title as the headline. The title statement from the full 245 MARC field, the location in the library, and the call number were used as the description. Additionally, the acquisition date was extracted from the ILS so that the order of the items in the RSS feeds could be established, and bibliographic ID number for the record was also pulled as a way of creating a hyperlink directly to the bibliographic record in the OPAC.

Once it was determined which data were needed, the systems librarian created an SQL*Plus query for each subject feed that would generate plain text files of new acquisitions based on call number criteria for each subject area. The SQL*Plus query retrieved the required fields and output them into a pipe (|) delimited file. It was decided that, to convert the plain text files to RSS, the Perl programming language be used. Perl has rich text processing features, and both the student programmer and systems librarian were familiar with it. In addition, some programming code, authored by Jonathan Eisenzopf and Rael Dornfast (2001), was freely available as a Perl module called XML::RSS. Taking advantage of existing code and resources was one way to streamline the creation of the feeds and to lessen the number of staff hours needed for the project.

Another technical consideration pertained to the version of RSS to be used for the TCNJ Library feeds. Because other projects across campus used RSS 2.0, using the same version for this new library acquisitions RSS feed would make it easier to integrate library-based feeds into other systems on campus. For this reason, and because it is a common standard, RSS 2.0 was chosen for this and all of the library's feeds.

After roughly one week, the student programmer and systems librarian had a working script that could convert the plain text files into RSS feeds. Using cron, a program that executes scheduled commands, the scripts were set automatically to run multiple times a day in order to create updated RSS feeds of new acquisitions. After the initial creation and set-up, the only changes have been to add new feeds or adjust call number ranges in existing feeds.

Once the RSS feeds were automatically being created, the final step was to integrate them into the CMS.

With TCNJ using its own proprietary CMS called SOCS, the situation was complicated somewhat. Programmers in campus IT had to create a way for RSS feeds to appear in SOCS, and they were behind schedule. By January 2006, library administration was eager to see the RSS project implemented, and was able to help influence IT to complete the RSS functionality in a more timely manner. The ability to display RSS feeds was finally added to SOCS by early March 2006. Teaching faculty were then able to display these library-related and other RSS feeds in SOCS (see figure 3).

Library Benefits

Having subject-specific new acquisitions feeds display prominently in the campus CMS has numerous benefits for students, faculty, and the college as a whole. By using the RSS feeds to access the OPAC, users are able to view books that the library has just received, and by linking through to the holdings information in the library catalog, users can verify ahead of time that the work meets their needs and that it is not already checked out. For some research works that seem promising, users must request materials through interlibrary loan services and wait an indeterminate period of time for their requested resources to arrive. With RSS feeds generated directly from the home library's new acquisitions, the headlines only link to works that are owned and that are very likely available. There is less disappointment for the user, and more immediate access to scholarship.

Besides being conveniently located in the library building, these books and materials represent the most current trends in the field. The RSS feeds create a virtual New Book area, parsed by subject, that is visible electronically every time the CMS page is opened for a class where it has been installed. Since the feeds are streamlined to display only the acquisitions in the class's subject area, they target a very specific user group with a particular set of materials exactly at the point of need. This is especially important for novice users or those who may still be struggling to find relevancy in the information literacy tutorials that were required as part of their freshman experience program. The RSS feed has been embedded in student (and faculty) workflow, taking some of the stress out of preliminary research in a broad topic, and igniting interest throughout the course of the semester. Over the sixteen weeks of class, the dynamic nature of the library collection and the evolution of that particular topic is explicitly available for students and faculty alike to monitor.

Figure 3: New Anthropology Books RSS feed displayed in TCNJ's CMS (called SOCS).

Once the campus community sees a sampling of the resources available at the library, users will be impressed with the collections, intrigued by the acquisitions, and will want to come to the library to use the print resources. Faculty will see instantly when the materials they ordered have arrived, a problem for which current ordering practices at TCNJ do no have a provision. Without the new acquisitions RSS feeds, faculty or even library selectors may not know their books have arrived for weeks or even months. The titles of new academic works are indicative of the subject matter they address, but can tend to be somewhat intriguing with the use of racy titles or suggestive wording. When compelling titles appear in RSS headlines, they will pique the interest of students using the CMS and serve as additional motivation to click through to the catalog. A member of the teaching faculty in the Department of Music explained that he likes the RSS feeds for new acquisitions because they show students the resources that are physically in the library. This faculty member believes, as do others, that when students actually go to the library they learn more and produce better scholarship than simply using electronic resources remotely. One of our librarians termed this concept, "Bricks, not clicks."

The Library as Knowledge Portal

RSS feeds of new materials grouped by subject present a continuous advertising venue for the library's print holdings. The featured materials are hand-selected by departmental faculty or subject-area librarians, or they are acquired through standing orders with reputable academic publishers. The library invests a considerable amount of money and staff time in selecting, acquiring, and processing new acquisitions and audio-visual materials. It is important to let users know about these collections, and that library materials are just what they need to finish assignments, explore research topics, or delve further into new scholarship on a subject (Corrado and Moulaison 2006).

In the increasingly digital campus environment, the RSS feeds promote the library's continued relevancy in the campus's online information environment. Although an OPAC is not as simple to navigate as a search engine like Google, users will find the hyperlinked headlines to be a first step. The good results enumerated above make it worthwhile for our users to work through the OPAC learning curve, or to begin seeking assistance from Public Service librarians when difficulties arise. For the uninitiated user, hyperlinked headlines in the CMS's RSS feed will take them directly into the library

catalog's short record display for the item. Users can then pursue the "More Like This" option if they want to continue their library catalog search painlessly. They may find themselves embarking on a meaningful self-guided OPAC discovery tour without realizing it. These users may not be browsing the library's print holdings on a regular basis otherwise, but the library does not hesitate to welcome them electronically into the fold of regular browsers and users.

Benefits to Librarians: A Good Buzz

One final benefit to creating RSS feeds for inclusion in the CMS is that it spotlights and encourages local skills and talents without burdening any library department or area and without requiring additional library spending. On-campus faculty, staff, and students collaborated on various stages of the design, creation, implementation, and marketing of the project. Once put into place, there is nothing extra for Technical Services or subject-area selectors to add to their workflows since the feeds are automatically generated. Behind-the-scenes librarians from systems and cataloging have been promoting the project most heavily; this has given them the opportunity to work collaboratively with members of the IT Department, Public Services librarians, student programmers, and teaching faculty. The project has also provided the opportunity to interact with other members of the library community, including libraries that have requested code, librarians who have used the idea for their own projects, and even library science faculty who have become aware of the project and find it interesting.

Moving Forward and Assessing

The idea has been realized, but this project remains a work in progress. Because of the delay in getting RSS feeds into SOCS, Fall 2006 was the first semester of the regular academic year that the feeds were available. Usage statistics and circulation statistics from fall 2006 have not been compiled, but anecdotal evidence has been encouraging. Teaching faculty who have already used the feeds in SOCS have provided positive feedback. Subject librarians have also been very enthusiastic. In fact, subject librarians were so interested in the RSS feeds that the college Web developer was asked to devise a way to display them in library subject and class guides. All told, the circulation of new acquisitions increased from 1,191 check-outs in fall 2005 to 1,290 in fall 2006. The current circulation statistics represent a roughly nine percent increase over the same time period

during the prior academic year. Although we cannot be certain that the reason for the increase can be attributed to the RSS feeds of new acquisitions in the CMS, there are currently no other compelling explanations that would give insight to the rise in check-outs.

However useful the RSS feeds may be, getting faculty to use something new can be a challenge; this is especially true when faculty were not immediately involved in the creation or implementation of the service and may not fully understand how it can serve their students and their own research. Faculty who use RSS feeds must choose which feeds they want included in the CMS. For classes that have a broad general interest in current events, the space for the new acquisitions feeds may be usurped by *New York Times* RSS feeds or other relevant current events feeds. Other faculty members may not wish to understand the new technologies, avoiding the CMS and RSS feeds altogether. Due to tight scheduling and pre-planned events, TCNJ Library was unable to secure time at the fall 2006 TNCJ New Faculty Orientation to demonstrate this new technology to the presumably receptive new faculty members. Although news blurbs about the RSS feeds and their ability to be integrated into the CMS have been issued on campus, it is questionable as to how many faculty members read press releases to learn about library innovations that can enhance the use of the CMS.

Indeed, getting key faculty members on board in each department would be beneficial, and training an early adopter in each department would be a worthwhile investment of time and energy. However, advertising the RSS feeds themselves has not happened on a large scale, in part because of other obligations on the part of librarians. Even if they know about the innovation, faculty may hesitate to introduce something new into their courses if they did not know about it while planning over the summer months. Considerable library effort in instructing faculty will need to be put forth during spring 2007. In this way, faculty will be knowledgeable about the RSS feeds and will have the functionality in mind as they begin to prepare syllabi and assignments for use in fall 2007 classes. An unexpected benefit of consulting with IT on this project and encouraging them to include RSS feeds in SOCS is that IT personnel now feel a certain amount of ownership. For this reason, they can be counted on as strong advocates for the library RSS feeds. One example of this is their offer of a time slot to allow librarians to explain the project to faculty at the annual TCNJ Technology Fair to be held in May 2007. Also, in their training sessions throughout the year and

by word-of-mouth, IT can help to advertise the RSS feeds of new acquisitions for the CMS.

As this project evolves, new technical issues are also arising. One subject librarian asked about customized feeds for a very specific aspect of anthropology. With the way the Library of Congress call number schedules are devised, there are repeated breaks in this topic. One group of call numbers will not neatly pull together all of the works in that field. There may be a way to generate a special subject-based feed through the use of carefully chosen subject headings, but this will require significant additional work, and does not guarantee to catch all of the works on the topic. Cross-disciplinary studies are problematic as well, and creating RSS feeds for areas like Global Studies or French Studies is a daunting task. Other issues have more straightforward solutions. Initially, the RSS feeds linked back to the OPAC through the item's unique ISBN. However, certain types of audio-visual materials did not always have ISBNs. Feeds based on item type, such as music recordings, scores, and DVDs, were unavailable. Now, the method for hyperlinking to the bibliographic record has been adjusted and is currently based on the item's system-supplied bibliographic ID record number. This has enabled new RSS feeds like the extremely popular new DVD feed, which, excluding the OPAC, was the fifth most accessed resource on the TCNJ Library's Web site in November 2006.

Related Ideas

Now that the RSS feeds of new acquisitions are active and can be used in the CMS, it has been worthwhile to consider other uses for RSS feeds in general and for these feeds in particular, and to think of other ways to get quality information into the CMS. By using resources that are available for free on the Internet, librarians can work in conjunction with faculty to create a variety of resources to direct students toward quality research while they are already in the online environment. Some librarians have proposed creating RSS feeds for library databases (Estlund 2006). We suggest taking this one step further by including these RSS feeds in the CMS alongside the new acquisitions RSS feeds. Other possibilities for displaying syndicated information in the CMS could come from tagged Web pages in social book marking sites like del.icio.us that allow RSS feeds to be generated every time a bookmark is added. If the librarian or faculty member chooses to select quality resources from the Internet, tagging them in del.icio.us and having those tags appear in the CMS will
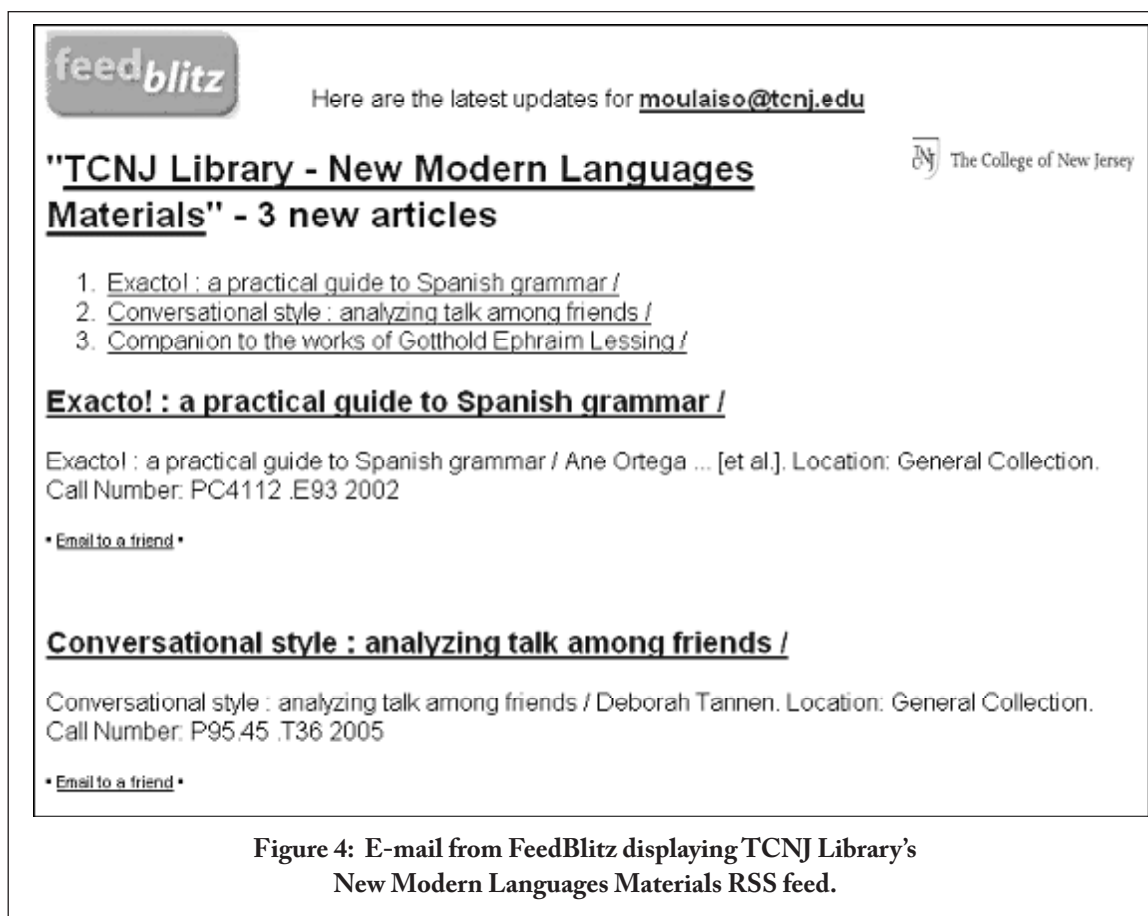
seamlessly direct students to quality Internet resources. The RSS feeds based on library acquisitions can also be used, as mentioned, in the subject and class guides that are available on the library Web site. A further idea for using the RSS feeds for new acquisitions includes creating daily emails based on the feeds. These emails are generated based on the RSS feeds, and include all of the elements found in the regular RSS display: hyperlinked headline based on the title proper in the bibliographic record, description from the 245, physical library location, and call number. Emails can be sent to recipients using the free FeedBlitz Web-based service. Recipients can then forward emails to interested faculty or students (see fitgure 4). The modern languages librarian has been receiving new acquisitions emails for several months, and has been personally alerting certain faculty members when materials they have ordered have arrived and been processed.

Conclusion

In working collaboratively to make in-house RSS feeds of new acquisitions, librarians with limited resources were able to serve the (e-)learning community by establishing and maintaining a concrete library presence in the Course Management System. This presence offers a viable alternative to Google by pointing users painlessly to library resources that are new and relevant. By integrating the local RSS feed of new acquisitions into a forum for potentially interested and captive users, the library was serving (e-)patrons while answering education's call for more library visibility in the CMS (Cohen 2002). TCNJ librarians have been able to draw awareness to the library's evolving print collection while reinforcing the library's active role in scholarship and place in the online campus environment. These RSS feeds were economical to create and have been simple to maintain. They serve users by advertising acquisitions, and in doing so, they improve library marketing and outreach capabilities.

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**Figure 4: E-mail from FeedBlitz displaying TCNJ Library's
New Modern Languages Materials RSS feed.**

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