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Publishing Undergraduate Research Electronically

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Publishing Undergraduate Research Electronically

Abstract

The College of Arts and Sciences at the University of Pennsylvania has as a goal expanding opportunities for undergraduates to conduct significant research and promoting the products of this research. CUREJ, the College Undergraduate Research Electronic Journal, was developed in collaboration with the Penn Libraries to achieve this goal.

Comments

Presentation given at EDUCAUSE 2007, Seattle, Washington, on 24 October 2007.

Publishing Undergraduate Research Electronically

Dennis DeTurck and Richard Griscom*

24 October 2007
EDUCAUSE
Seattle

1 Introduction [DeTurck]

- The context of Penn
 - [CLICK] Southernmost Ivy League school
 - Founded by Benjamin Franklin
- [CLICK] The four undergraduate schools

2 Undergraduate Research at Penn

[CLICK] [CLICK]

- The story of two undergraduate researchers
 - [CLICK] Boris Zinshteyn
 - [CLICK] Tom Prior
- Examples of the variety of research in *CUREJ*
 - [CLICK] Traditional written reports (Michael Gertner and Steven Thomas, “The role of norepinephrine in spatial reference and spatial working memory”)
 - [CLICK] Creative arts (Julie Schneider, “Alice Leaps”)
 - [CLICK] Multimedia presentations of research (Emily Buzzell, “Mortality of US Troops in the Iraq War, 2003-2006”)

[CLICK]

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3 Genesis of *CUREJ*

- [CLICK] Print journals and their problems [CLICK]
 - [CLICK] Reasons for decision to develop an electronic journal
 1. [CLICK] Longer, greater impact; permanence
 2. [CLICK] Increase understanding of undergraduate research
 3. [CLICK] Inspire existing students and promote opportunities for prospective students
 4. [CLICK] Provide mentoring opportunities with faculty
-

4 The Collaboration between the Library and the College of Arts and Sciences [Griscom]

4.1 Recent history

[CLICK] The Library's work with the College on *CUREJ* wasn't our first collaboration. During the past several years, the Library and the College of Arts and Sciences have had a strong history of working together.

4.1.1 Weigle Information Commons

[CLICK] The most visible product of our collaboration has been the Weigle Information Commons, or "the WIC." We began working together on this project because we realized that the School and the College share an interest—and a responsibility—in improving the academic experience of students and that we could help each other as we work on this goal.

The theme of the WIC itself is collaboration. The Library and the School developed a space in our main library to serve three purposes:

1. To encourage group study and collaborative learning. This is done through the [CLICK] College Technology Center. Because students' work increasingly emphasizes group projects and shared learning experiences, they need space to collaborate. The College Technology Center is designed to provide a technology-rich place to [CLICK] meet, talk, research, draft position papers, [CLICK] debate, interact with texts, work on presentation skills, and develop final presentations—all with support staff nearby.
2. [CLICK] The WIC provides equipment, training, and support for working with digital media. The Vitale Digital Media Lab offers the tools necessary to work with video, audio, imaging, and web publishing. [CLICK] The Lab has extended operating hours, and is attended by staff who know the equipment and the craft; and
3. [CLICK] The WIC improves the presentation of research through effective writing, speaking, and visual design. Several academic support programs provide walk-in assistance to students in the WIC, where their combined presence provides a single point of contact for students. The services already in place are

Research Skills, Time and Project Management, Communication within the Curriculum (CWIC), and Writing Skills.

[CLICK] The WIC is not intended to be a study hall. It's a place to work with staff and fellow students on research. It's not a computer lab, but a kind of workshop—a resource that young scholars use in carrying out their academic apprenticeships. [CLICK] By pulling these programs and physical resources together in a library facility, the School of Arts and Sciences and the Library took a major step toward integrating their shared priorities.

4.1.2 Undergraduate research journal

[CLICK] Just over two years ago, in June 2005, during the planning stages for the WIC, Dean DeTurck was invited to a meeting of the library's Public Services Council, a group comprising all the librarians who work directly with students, staff, and faculty. Our head of public services, the late Sandra Kerbel, regularly invited administrators like Dean DeTurck to our meetings so that we could be better informed about current issues in the academic communities we serve.

At this meeting, Dean DeTurck talked about major changes being put in place in the college curriculum and its renewed focus on research. During his discussion of the revised curriculum, he mentioned that part of the emphasis on research included plans to inaugurate an electronic research journal to provide a showcase for the best undergraduate research.

4.2 *ScholarlyCommons@Penn*

[CLICK] Coincidentally, when the dean met with us, the library was rolling out our institutional repository, *ScholarlyCommons@Penn*, to the campus at large. This web-based archive of campus research runs on the DigitalCommons software platform, which is developed and marketed by Bepress, the Berkeley Electronic Press.

ScholarlyCommons@Penn had started in 2004 as a pilot project with the School of Engineering, whose dean saw it as an effective way to promote the research accomplishments of the school.

Once we had emerged from the pilot project, the library decided to open up the repository to the rest of campus, but we wanted to be careful not to overextend ourselves, because at that point, all of the work on the repository was done by existing library staff whose principal jobs were in other areas. There were limits to the amount of work they could take on, so we had to pick and choose new participants carefully. The most attractive prospects were high-profile departments that showed a strong commitment to the repository.

Sandra Kerbel, who had invited Dean DeTurck to the meeting, was one of the driving forces behind the new institutional repository. When she heard the dean mention an electronic research journal, she immediately thought of the repository as a possible host. This was exactly the kind of high-profile content she wanted to see in the repository. After the meeting, she and Dean DeTurck met and began laying plans for *CUREJ*.

[CLICK] During a six-month period, from fall 2005 to spring 2006, the library and the college worked together on designing the interface for *CUREJ* and developing appropriate search and browse tools. The College settled on three broad topic areas that correspond to the divisions of the college: Social Sciences, Natural Sciences, and the Humanities.

This is what the *CUREJ* interface looks like. The page is quite a bit different from the other *ScholarlyCommons@Penn* pages. The College did the web design, and the DigitalCommons support staff adapted it to fit the content. You'll see that there's an emphasis placed on divisions and departments. Over on the right are featured papers in each of the three divisions. On the left, the papers can be browsed by division and by department, so each unit within the college can have some sense of independent identity on the site.

5 Developing policies and procedures

5.1 Selection and Nomination

[CLICK][CLICK] After the site had been designed, a natural question arose: Who would decide what research is published in *CUREJ*? The College decided it would be a mistake to open the site up to the posting of any paper by any undergraduate student because they would lose all control over the quality or content.

It was clear a vetting mechanism was needed, but who would do this vetting? [CLICK] Opening it up to all faculty would not be manageable because of the hundreds of people involved. [CLICK] The College decided to work through the fifty undergraduate program chairs, a group of a more manageable size. [CLICK] Individual faculty would be asked to recommend papers to their program chair, and then the chair would make the formal nomination.

[CLICK] In effect, then, the faculty in each discipline act as the editorial board for their area and there is peer pressure to keep the submissions of uniformly high quality as well as to make sure the faculty's particular discipline is well represented.

5.1.1 Project Recommendation Site

[CLICK] The next task was setting up a mechanism for these program chairs to recommend papers. The obvious choice was to create a web-driven form and an email-driven notification system so that program chairs could nominate papers from anywhere at anytime, and students could learn of the nomination and act on it regardless of whether they were in residence on campus.

Ted Marvel, the web developer for the College of Arts and Sciences, designed and coded the interface. His approach to designing web interfaces is to make them as simple and spare as possible. He's learned that if users run into any complications or become confused, they will simply abandon the form. It's not that they couldn't figure it out if they'd devote a bit of time to it; they simply won't because they lack the patience.

More to the point, when dealing with faculty, unless they are doing something that they consider to be in their own best interest, they're not likely to put a lot of effort into it unless the process is very simple.

After Ted finished the interface, it was presented, along with the procedures, to the fifty undergraduate program chairs and met with approval.

5.1.2 Program chair submits recommendation

[CLICK] To show you how the process works, let's imagine I'm the program chair for the music department, and a faculty member in my department has a student composer,

Paul Westerberg, whose “Musical Composition no. 3” is a piece she thinks is worthy of publication in *CUREJ*.

There are seven fields I need to fill out: My first and last name, my email address, the project title, Paul’s first and last name, and his email address. That’s all that’s needed to get the process underway.

[CLICK] Once I click the submit box, a screen displays announcing that the recommendation was received, and that Paul has been notified by email.

5.1.3 Notification of nominee

[CLICK] This is what that email to Paul looks like. Again, the College took some care in composing the text of the message to make sure the steps were described as simply and concisely as possible.

In this note, we tell Paul that his project has been approved for publication. We tell him that he must fill out an author agreement, and we give him the address of the office where the form should be submitted, and a link to the PDF form. We tell Paul he will then need to submit his project, and we provide a link to instructions. And finally, we give an email address for questions.

5.1.4 Author agreement

[CLICK] Here is the author agreement form. Of course, ideally the whole process would be web-based, but we require this one piece of paper because the agreement is something that needs to be signed and kept on file. The agreement basically grants us permission to make the research project available permanently to the world at large.

5.1.5 Submission

[CLICK] Next, Paul would create an account in *ScholarlyCommons@Penn* and upload his Musical Composition no. 3 into a holding queue in the repository. For text documents, the system can accept Microsoft-Word, Rich Text Format, or PDF files. For a graphical file like a music composition, the file would probably be submitted as a PDF. [CLICK] The repository software converts the files, as needed, to PDF, and attaches a system-generated cover page so that each document in the repository has a uniform appearance.

The submission step is the one area where everything hasn’t been going exactly as planned. Initially, the College announced that 200 papers would be added each year. The number has fallen far short of that.

So far, 175 papers have been recommended. Of these, only 71 have actually been uploaded and posted.

As it turned out, many students did not end up submitting their nominated papers to the site. Most of the nominated papers were by seniors, and they first learned that their work had been nominated right before graduation. Last year the college announced that the schedule would be adjusted so that the announcements would occur earlier in the year in order to give those students who are graduating enough time to post their work before they leave campus.

5.1.6 Review and posting

[CLICK] Once the paper is uploaded, Danielle Venit, the administrative staff member in the College who works with *CUREJ*, gets a message from *ScholarlyCommons@Penn*.

First, she logs into the administrative interface [CLICK] She checks the uploaded file to make sure that it matches the recommended paper. She checks for typos in the metadata. She adds subject keywords and information on the advisor. And she checks to make sure the author agreement has been received.

[CLICK] Once the submission has cleared these hurdles, she then “posts” the paper. Paul receives system generated notification that the paper is now available, and the note includes the URL.

So, at every step along the way, the author is notified of the progress of the paper. Once it has been published, the author receives email from the system each month reporting the number of times the paper has been downloaded. It can be surprising just how many times these papers are downloaded. (More on that in a minute.)

5.2 Creative Commons

[CLICK] The articles submitted to *CUREJ* are published under a Creative Commons license. For those of you who aren't familiar with Creative Commons licensing, it's basically a way for an author to retain rights to a piece of writing while authorizing certain uses of the work.

As it says on the Creative Commons site, “Creative Commons defines the spectrum of possibilities between full copyright—all rights reserved—and the public domain—no rights reserved. Our licenses help you keep your copyright while inviting certain uses of your work—a 'some rights reserved' copyright.”

Creative Commons has developed a suite of licenses that allow authors to pick and choose what they wish to allow others to do with their work. One goal of the Creative Commons license is to encourage authors to retain their rights instead of signing them over to a publisher or an institution. An author who retains rights can then decide who can do what with a piece of writing.

The license used by *CUREJ* is the Creative Commons “Attribution-Noncommercial-NoDerivatives” license. If you click at the link on the bottom of the *CUREJ* site, you'll see this definition of the license in plain English. Under this license, you, the reader, are allowed to copy and distribute the work provided (1) you attribute the work to the author, (2) you don't sell the article, and (3) you leave the article intact, without changes.

6 Publicity and promotion of site [DeTurck]

[CLICK]

6.1 Articles in various Penn publications

- A December 2005 article on the School of Arts and Sciences website:
<http://www.sas.upenn.edu/home/news/CUREJ.html>
- A January 2006 article in a university staff newsletter [Gazette]
<http://www.upenn.edu/gazette/0106/gaz02.html>

7 Content

[CLICK]

7.1 A few sample papers

- [CLICK] <http://repository.upenn.edu/curej/13/>
“Suds and Selfhood: Marketing the Modern Woman in the 1920’s, 1930’s and 1940’s.”
If I go to Google [“suds and selfhood”], we’ll see that this paper can be discovered through a simple search on its title. Also [“women ivory soap”]
 - [CLICK] <http://repository.upenn.edu/curej/31/> “Silent No Longer: Voices of the 1967 Newark Race Riots,” by Kimberly Siegal.
The product of interviews with eye witnesses and people directly affected by the riots.
 - [CLICK] <http://repository.upenn.edu/curej/15/>
“Vicious Geography: The Spatial Organization of Prostitution in Twentieth Century Philadelphia,” by Sarah S. Bertozzi.
A study of the geographical distribution of prostitution in Philadelphia since 1900.
-

8 Impact [Griscom]

8.1 Exposure and use

[CLICK] Once the initial papers in *CUREJ* had been published in spring 2006, we immediately discovered that the students’ submissions attracted a lot of attention and were frequently downloaded. In fact, the undergraduate research projects published in *CUREJ* are among the most heavily used documents in our repository.

[CLICK] Since the beginnings of the repository in August 2004, we have uploaded 3,036 documents representing a fairly broad spectrum of research, with a decided focus on engineering, since the Engineering School was the first unit to sign on. [CLICK] Of these documents, only 71 are *CUREJ* articles—about 2 percent. [CLICK] But these 71 papers, during the month of September, generated 10 percent of the downloads.

[CLICK] We had 11,492 downloads of documents deposited in *ScholarlyCommons@Penn* in September, and 1,015 of those downloads were of *CUREJ* papers. [CLICK] That’s an average of 11 downloads per paper per day during the month of September.

[CLICK] Looking back at the most popular paper on the *CUREJ* site, the “Suds and Selfhood” article, there have been 3,243 downloads during the 17 months it’s been available; that’s an average of 191 downloads each month, or about seven times each day for the past year.

[CLICK] Looking here at the ten most frequently downloaded papers, based on the average number of full-text downloads per day since the paper was posted, four of the papers are from *CUREJ*, and the second paper, although not in *CUREJ*, is based on the research reported in the video by Emily Buzzle that Dennis showed you an excerpt of a few minutes ago.

8.2 Inspiration to other units

[CLICK] As a result of the popularity of *CUREJ* and the publicity it's generated, we've had inquiries from other schools about setting up a similar journal for undergraduate research. The head of the Research Scholars Program in the Wharton School of Business contacted us last year about setting up a "Wharton Undergraduate Research Journal"—"WURJ" if you will (I'm afraid it doesn't have quite the same ring to it as *CUREJ*). So other schools are sitting up and taking notice and want to provide their own students with a publication opportunity like *CUREJ*.

[CLICK]

9 Conclusion [DeTurck]