# Introducing Library Research Databases to Agricultural Economics Students

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## Abstract

A professor of agricultural economics and a member of the library faculty at Purdue University collaborated to improve the quality of students' research and references for a class project, which the agricultural economics professor had been assigning for several semesters. They designed a class lecture, which included an active learning exercise, to help students learn how to use library databases for research for the project. After the class lecture, students were surveyed to determine the effectiveness of the intervention, the change in their awareness of different reference materials, and the change in their usage of these references. The survey referenced in this article was deemed exempt by Purdue University Institutional Review Board. Results indicate that students significantly expanded their awareness and use of references for the course in question as well as other courses they were taking that semester, evidence of an increased level of information literacy.

## Introduction

Beginning in 2009, a professor of agricultural economics and an assistant professor of library science at Purdue University collaborated to meet the challenge of improving the quality of students' research and references for a class project. For many semesters, the professor of agricultural economics had been incorporating a current issues project into an agribusiness marketing course. The course was a 400 level course drawing students who were agribusiness majors as well as other majors from the College of Agriculture. Students took this course during their junior or senior year. The major course project had the objective of increasing student understanding of current topics in the news and gaining direct experience applying theoretical concepts from the course to the real world. To complete the project students were required to:

• Form self-selected teams of two or three students to research library databases, identify several issues and ultimately choose a current issue,

• Conduct research on this topic using sources from the library databases,

• Develop and prepare an oral presentation, including a dress rehearsal with the professor of the course, and

• Deliver the formal presentation to the class and lead a question and answer session with the class.

In past years, completed projects ranged from unacceptable to outstanding. However, the sources that students used to research their topics recently had been less reputable and less acceptable. The professor was especially vexed when several students relied on unsuitable videos from YouTube, a website for sharing and viewing videos. While YouTube can be a rich source of information for some needs, the videos that the students selected for this project did not have the qualities of credibility, authority, relevancy, and objectivity. The instructor recalled the visit of the head of the Management and Economics Library to the agricultural economics faculty meeting, where the contribution library faculty could make to courses through lectures on research strategies in subscription databases, was identified. As a result, the professor contacted the librarian and set up the collaboration that is described here.

## Literature Review

Student needs for finding and using quality information have always been recognized as a staple by university faculty, and these needs have been a matter of study in library science for over 20 years (Weiler, 2005). Twenty-five years ago a research project for

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a college class included going to the library and digging into printed indexes, finding and photocopying relevant journal articles, and taking handwritten notes. Today's professors, students, and librarians have access to desktop tools that rise above that drudgery, but the three groups have different expectations of these tools. While professors want students to present quality research that supports assertions they make in papers and presentations and to provide appropriate citations, they sometimes erroneously expect that students come to class having mastered these competencies (Mackey and Jacobson, 2005), or that students should learn the skills of research, referencing, and citing on their own (Gonzales, 2001). Students often overrate their abilities when it comes to finding information, especially on the Internet (Weiler, 2005). They expect to enter a word, phrase, or question into a search field, then follow through by using whatever the search engine has supplied. Librarians want to help frustrated undergraduate students who are told their references are unacceptable, and may expect that students can transfer Google skills to subscription databases.

Bellamy (1984) noted that while bibliographic guides were advancing as a result of technical innovations, faculty and students lacked computer expertise to effectively utilize electronic databases, and recommended courses to overcome this obstacle. This recommendation is supported by Dahlgren's findings (1987) that students find more useful citations when they get help from a librarian, and by Mackey and Jacobson (2005) that teaching alliances with librarians give faculty an opportunity to update their own information literacy skills. According to Caspers and Lenn (2000) this kind of collaboration results in productive learning experiences. Mackey and Jacobson suggest that team teaching gives students *"the best opportunity to apply information literacy within the context of a specific discipline"* (2005, p. 141).

## Method

A three-step process was used for the information literacy intervention: (1) introduce and demonstrate the library resources, (2) let the students perform preliminary research, and (3) evaluate their results. The librarian identified relevant library databases ( Table 1) and designed the active learning lecture session. The class session was delivered by the librarian with assistance from the professor. Following the lecture, students completed the course project with their presentations spread over several weeks of the semester. Once all presentations were completed, students were asked to complete a written survey to

*Table 1. Resources for Current News Research*

| Subscription Databases | Purdue Supplied Resources | Free Internet Sites |
|---|---|---|
| LexisNexis Academic | Course page for AgEc 426 | AgEconSearch |
| Factiva | OWL | USDA |
| Newspaper Source | | Google News |
| PressDisplay | | Bing News |
| ABI/Inform | | CNN.com |
| Business Source Premier | | Washington Post |
| AGRICOLA | | NPR |
| EconLit | | |

measure the impact of the lecture by evaluating the change in student knowledge of library resources as well as the change in usage of library resources for course work.

## Designing the Class Lecture

The librarian and agricultural economics professor agreed that the students would benefit from a lecture designed to improve information literacy. A demonstration of both academic databases as well as free Internet sites that would provide acceptable resources for the project was needed. Since a demonstration showing how to find a scholarly article in a database, besides being deadly boring, serves little purpose beyond the immediate result, it was crucial to include an active learning activity that would help students get started on research for the assigned project. The benefits of active learning with respect to student learning and retention, are well documented in the literature. Bonwell (1999) found that students in rigorous disciplines such as agricultural economics benefit from active learning, enabling them to maintain focus. Felder and Brent (2008) note that when students are actively engaged they retain more and assignments have better results. The active learning component for this class was the opportunity for student teams to use computers to explore demonstrated resources and begin making decisions about the project.

## Integrating Information Literacy

Purdue University Libraries has adopted an Information Literacy Program as an important building block of the library's commitment to support information literacy as both an academic research skill and a lifelong learning skill. The Mission Statement states, in part, *"The Purdue University Libraries Information Literacy Program builds a foundation for discovery, learning, and engagement across the University and its broader communities,"* (Purdue University Libraries Information Literacy Program Mission Statement, 2010 ) The Information Literacy Program aims *"...to integrate information literacy concepts into the curriculum, and to develop skills and competencies in learners to identify, find, evaluate, and*

*ethically use information, enabling academic success"* (Purdue University Libraries Information Literacy Curriculum, 2010). The Association of College & Research Libraries (ACRL) adopted performance indicators for the principles of information literacy in 2000 (Association of College and Research Libraries), and standards three and four of those principles apply to the needs of this project:

Competency Standard Three: The information literate student evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system.

Competency Standard Four: The information literate student, individually or as a member of a group, uses information effectively to accomplish a specific purpose.

## Teaching to the Project

Pedagogical options for the class were selected with the focus on information literacy. For example, since the assignment builds on a current issue in the news, selected subscription databases and free resources had to be strong news sources with an emphasis on authority and reliability. Structurally, the traditional guest-lecture, beginning-of-semester general demonstration of library resources (referred to as a "one-shot" by academic librarians) is often subject-specific but seldom project specific. Occasionally allotted just a fraction of a class period, the one-shot is insufficient to fully support information literacy and serves as a just-in-case demonstration. As pointed out by Anderson and May (2010), these sessions are inadequate to gain ACRL-identified information literacy skills. This agricultural economics class project was a definitive example of student need for just-in-time research help, so an entire 75-minute class session was allotted to the instruction. Content-wise, active learning and team teaching are proven approaches for introducing electronic resources (Maddux and McKenna, 1998) and so were incorporated into the plan.

The lesson plan for the session began with the basics:

1. Introduction to the Management and Economics Library and its web site, including options for getting research assistance.

2. Presentation of the online course page (created with LibGuide software) with links to selected resources, guides for evaluation of sources, and citation aides.

3. Discussion of the types of hard copy and electronic documents that could be used to research the project, and the need that sources be authoritative, accurate, credible, and timely.

Beginning a project is one of the top frustrations of a research project for many students (Head and Eisenberg, 2009). Therefore, time for students to start selecting potential topics for the project was deliberately incorporated into the class session. Specific strategies were introduced, such as choosing a subject that was already interesting to them, or checking out a website dedicated to agricultural economics (e.g., USDA News) to see what was featured. To encourage brainstorming, collaboration, and exploration, each team was given a flipchart sheet and directed to come up with a list of five or six possible topics to display and share with the class. Each team of students had access to the Internet. After the brainstorming session, there was a class discussion led by the course instructor of similarities and differences in chosen topics. The instructor evaluated each topic, identifying how the topics could or could not work in the context of the course project, with specific evaluation of the marketing connection.

After discussion and evaluation of the topics, students had the remainder of the 75-minute class time to search for research articles and other credible sources that would support one or two of their chosen topics. Students were encouraged to explore demonstrated websites and databases linked in the online course page to find quality sources that would support their topics. In particular, students were reminded of evaluation strategies for Internet searching such as looking for reliable .edu or .gov sites.

The college course described here was an agribusiness marketing course and not an information literacy course where there would have been a complete examination of all the principles of evaluating information. During the presentation in the class lecture there was a brief overview of the essential aspects of depth and breadth, bias and perspective, quality of publication, purpose of the information, date and level of information. Other essential aspects, such as plagiarism and requirements for correct citation, were taught by the agricultural economics professor at another point in the course.

## Results and Evaluation

As noted previously, student responses to a written survey were used to evaluate the impact of the lecture to promote information literacy. The survey, developed by the professor and librarian, was four pages and consisted of ten questions, a copy of which is in Table 2. The survey was distributed to two classes, one in Spring 2010 and one in Spring 2011, and was completed by those students who attended class on the day the survey was distributed. The hard copy surveys

| Table 2. Student Survey on Using Library Resources |
| :---: |

Survey
AgEcon 426

These questions refer to the special class session and demonstration of library resources that was held on the afternoon of Tuesday March 22.

In order to participate in this survey, you must be 18 or older.

Participation is voluntary and you are not obligated to answer all questions.

1) Please indicate which of the following resources you were aware of before the library instruction session. Check Aware or Not Aware:

| Resource | Aware | Not Aware |
| :--- | :---: | :---: |
| Library subscription database LexisNexis Academic | _____ | _____ |
| Library subscription database Factiva | _____ | _____ |
| Library subscription database Newspaper Source | _____ | _____ |
| Library subscription database PressDisplay | _____ | _____ |
| Library subscription database ABI/Inform | _____ | _____ |
| Library subscription database Business Source Premier | _____ | _____ |
| Library subscription database AGRICOLA | _____ | _____ |
| Course page for AgEc 426 | _____ | _____ |
| Purdue's Online Writing Lab (OWL) | _____ | _____ |
| Career Wiki | _____ | _____ |
| Free resource AgEconSearch | _____ | _____ |
| Free resource USDA | _____ | _____ |
| Free resource Google News | _____ | _____ |
| Free resource Bing News | _____ | _____ |
| Free resource CNN.com | _____ | _____ |
| Free resource Washington Post | _____ | _____ |
| Free resource NPR | _____ | _____ |

2) Please indicate which of the following resources you have used for the AgEcon 426 Current Issues project. Check Used or Have not used.

| Resource | Used | Have not used |
| :--- | :---: | :---: |
| Library subscription database LexisNexis Academic | _____ | _____ |
| Library subscription database Factiva | _____ | _____ |
| Library subscription database Newspaper Source | _____ | _____ |
| Library subscription database PressDisplay | _____ | _____ |
| Library subscription database ABI/Inform | _____ | _____ |
| Library subscription database Business Source Premier | _____ | _____ |
| Library subscription database AGRICOLA | _____ | _____ |
| Course page for AgEc 426 | _____ | _____ |
| Purdue's Online Writing Lab (OWL) | _____ | _____ |
| Career Wiki | _____ | _____ |
| Free resource AgEconSearch | _____ | _____ |
| Free resource USDA | _____ | _____ |
| Free resource Google News | _____ | _____ |
| Free resource Bing News | _____ | _____ |
| Free resource CNN.com | _____ | _____ |
| Free resource Washington Post | _____ | _____ |
| Free resource NPR | _____ | _____ |

3) Please indicate which of the following resources you have used for other projects. Include both class projects/assignments and personal projects:

| Resource | Used | Have not used |
| :--- | :---: | :---: |
| Library subscription database LexisNexis Academic | _____ | _____ |
| Library subscription database Factiva | _____ | _____ |
| Library subscription database Newspaper Source | _____ | _____ |
| Library subscription database PressDisplay | _____ | _____ |
| Library subscription database ABI/Inform | _____ | _____ |
| Library subscription database Business Source Premier | _____ | _____ |
| Library subscription database AGRICOLA | _____ | _____ |
| Course page for AgEc 426 | _____ | _____ |
| Purdue's Online Writing Lab (OWL) | _____ | _____ |
| Career Wiki | _____ | _____ |
| Free resource AgEconSearch | _____ | _____ |
| Free resource USDA | _____ | _____ |
| Free resource Google News | _____ | _____ |
| Free resource Bing News | _____ | _____ |
| Free resource CNN.com | _____ | _____ |
| Free resource Washington Post | _____ | _____ |
| Free resource NPR | _____ | _____ |

were handed out to students at the start of a class period so they had ample time to complete all parts of the survey. During the introduction of the survey, students were informed that participation was voluntary and if they elected to complete the survey, all results would be confidential since the completed surveys were returned anonymously. A total of 97 students enrolled in these two classes, and 72 students filled out the optional survey. The data from the two years were pooled together and analysis proceeded with the data from the two classes. The data were entered into a spreadsheet to facilitate the creation of figures and statistics reported in this paper.

Students completed the survey to identify their level of awareness of various resources prior to instruction, their awareness after instruction, and their usage of the resources for the marketing class as well as for other classes. If the focus of this course had been information literacy, the faculty would have conducted a pre-test to determine student information literacy skills at the beginning of the semester and then a post-test to determine improvement. The course was agribusiness marketing management, with this intervention one part of a broader course. Given the time and resources available it was necessary to rely on student self-reporting to measure change in awareness and change in behavior.

Students' responses to the question of which resources they were aware prior to instruction by the librarian, are presented in Figure 1. In general, the students' awareness of the subscription databases accessible through the Purdue Library system and available to Purdue students, faculty, and staff, was low with less than one-third of students indicating awareness. It is interesting to note than only about one-quarter of the students were aware of AGRICOLA (a subscription database of material on agriculture in the National Agricultural Library) prior to the lecture, in spite of the fact that the course is a 400-level agricultural economics course. Their awareness of EconLit (a subscription database of economics literature) was slightly higher, but still fewer than one-third of students reported awareness of it. Again, this seems low for a 400-level agricultural economics course. Another surprising result was the low level of awareness of ABI/Inform (a subscription general research

(Table 2 Continue)

4) Consider the AGEC 426 Current Issues Project involving the identification and research of a current issue in the news. How beneficial was the session in the computer lab in the undergraduate library in your ability to complete the project and earn a good grade on the project? (Please circle one)

Not beneficial                                                          Very beneficial
1                    2                    3                    4                    5

5) If you are unable to find the information required for a project, which of the following would you do?

Ask my professor for help _____ yes _____ no_____ not sure

Go to the reference/help desk in the library _____ yes _____ no_____ not sure

Contact a librarian for an appointment to get assistance
_____ yes _____ no_____ not sure

Use the IM service on the library home page
_____ yes _____ no_____ not sure

Use the link on the library home page to send an email to library staff
_____ yes _____ no_____ not sure

Ask a fellow student for help _____ yes _____ no_____ not sure

6) If you are graduating and intend to enter the workforce, will awareness of these types of subscription databases and free web resources influence how you will look for information in your work setting?
_____ yes _____ no_____ not sure

7) If you are not graduating at this time but continuing your education, will awareness of these types of subscription databases and free web resources influence how you will look for information for other classes?
_____ yes _____ no_____ not sure

8) Will awareness of these types of subscription databases and free web resources influence how you look for information for personal reasons?
_____ yes _____ no_____ not sure

9) Are you _____ Male _____ Female

10) What is your current GPA?
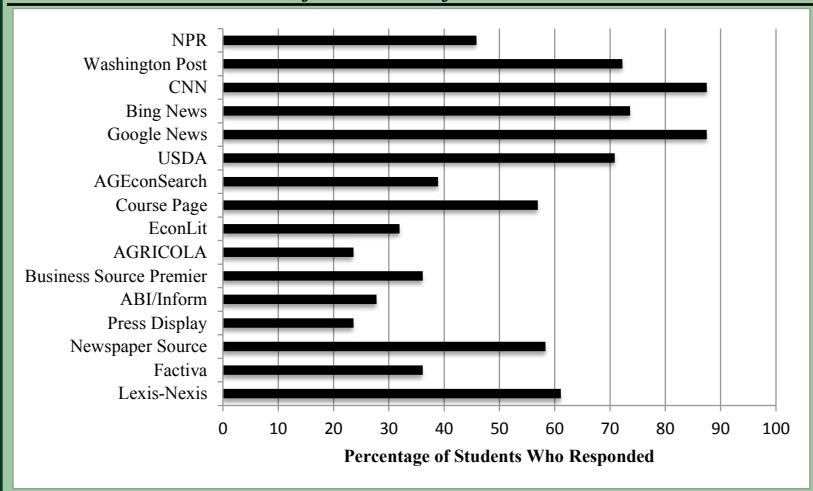_____<2.5 _____ 2.5-3.0 _____ 3.0-3.5 _____ > 3.5

Thank you!

database) in spite of the fact that library faculty promote it in every management, business, and economics class that they visit starting at the freshman level.

CNN and Google News were the resources of which students were most aware prior to instruction with almost 90% of students indicating awareness. Awareness of USDA was also strong at just over 70%. It is noteworthy that over one-half of the students indicated they were aware of the course web page

prior to instruction, yet that web page was set up specifically for the class and first introduced during the intervention. This result provides evidence that the concerted effort by librarians to promote information literacy through guest presentations in courses and setting up course pages across campus is increasing student awareness.

Students were also asked to identify resources they used during the semester both for the marketing course as well as for other courses (Figures 2 and 3). Despite low levels of awareness at the start, students responded to instruction and made use of the resources. In Figures 2 and 3 the solid lines represent the percentage of students who were unaware of the resource prior to instruction and then used the resource, while the hatched bars identify the percentage of students who were aware of the resource prior to instruction and used that resource. Every resource was used by at least one student for the marketing class as well as for other classes. The sources used most often were Google, followed by USDA and CNN. The course page was used for the marketing class project by almost 60% of responding students (20% who had been unaware and almost 40% who had been aware), once again showing the value of librarians in promoting information literacy. Another surprising finding is that although searching the databases LexisNexis and Factiva is not intuitive, there was high usage of these databases. Over 50% of surveyed students reported using LexisNexis and nearly 40% reported using Factiva for the marketing course, while 66% of the surveyed students reported using LexisNexis and 38% reported using Factiva for other courses.

## Discussion and Conclusions

Although not all students responded that the session was helpful, they all did report using the resources that were demonstrated. Many of the students tried at least one of the subscription databases that were new to them. The original objective of the special class lecture was achieved: namely, to improve the quality of the resources students used for the current issues project.

Partnership with library faculty was extremely beneficial in efforts to improve student performance from a research and content perspective. Faculty cannot assume that students come to the classroom with



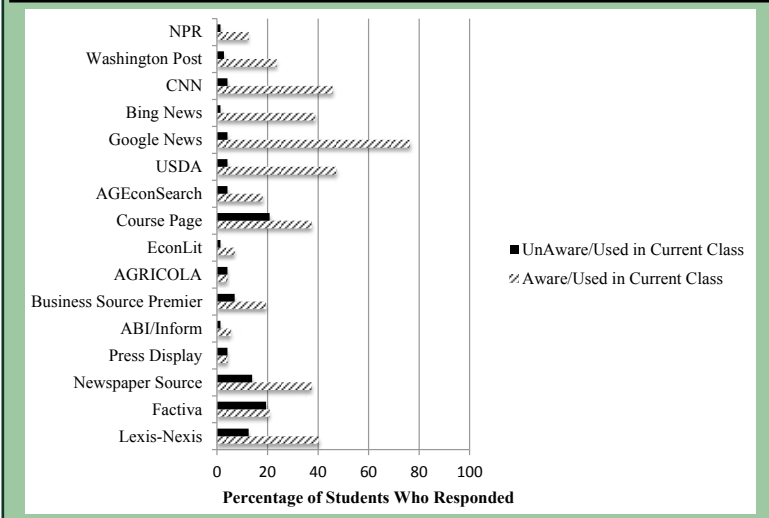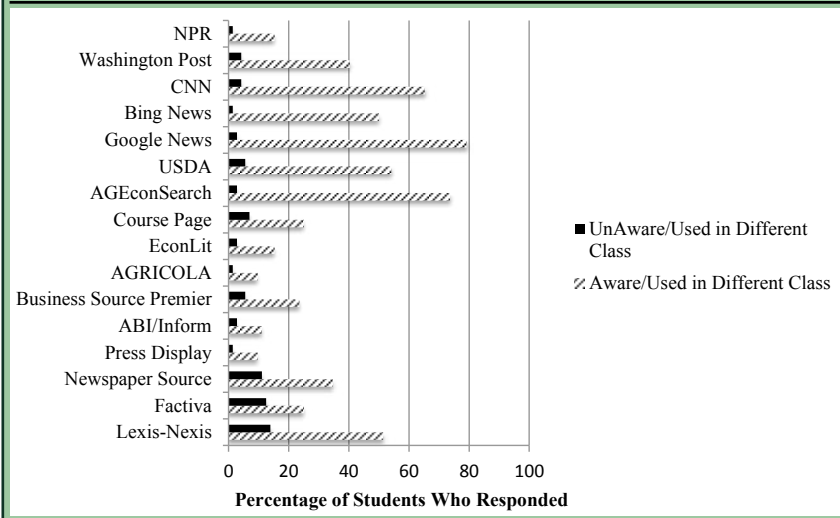Figure 1. Percentage of Responding Students Who Were Aware of Resources Before Instruction

Percentage of Students Who Responded

Figure 2. Percentage of Responding Students Who Used Each Resource for the Current Class



Figure 3. Percentage of Responding Students Who Used Each Resource for Another Class

The final outcome was that through faculty-librarian relationship building, students improve their information literacy skills, achieve more comprehensive research analysis, and improve presentation skills. They developed research skills that would be beneficial in aspects of their life outside of the classroom, especially as they enter the workforce.

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effective information literacy skills. From the results presented here we have evidence that it was possible to improve information literacy skills. It was possible to change student behavior and direct them to sources that were rigorous and authoritative.

The agricultural economics professor and librarian are planning to continue their partnership. They will continue to include the student favored subscription databases, LexisNexis, Factiva, and NewspaperSource, as well as the chosen internet sources, USDA, Google News, and CNN, but overall the list of demonstrated or recommended resources will be reduced. Limiting the number of options will help students focus on discovering rather than exploring, and will free more time for discussion of evaluating information and applying critical thinking skills to the project. It is especially important to foster the perceptive evaluation of Internet sources, and this will be emphasized in future classes.

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